

Long-COVID Update #2



17 June 2021

Welcome to the second edition of the Long Covid Update. The aim of this publication is to bring together a range of recently-published research and guidance that will help you make evidence-based decisions.

Accessing Articles

The following abstracts are taken from a selection of recently published articles.

If the article is available electronically, then there will be a blue link in the abstract. [Press CTRL and click to open the link. You will need to be registered for NHS Athens (see below) to be able to access the full text.] If the full text is not available electronically we may be able to obtain the document through our document supply services.

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Feedback and requests for additional evidence searches

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Please contact Holly if you would like more information, or further evidence searches: holly.cook3@nhs.net.

A selection of papers from Medline, Embase and CINHAL from the past 4 months. The most recent is displayed first.

1. Rehabilitation in adult post-COVID-19 patients in post-acute care with Therapeutic Exercise.
2. Recovery from COVID-19: A sprint or marathon? 6-month follow-up data from online long COVID-19 support group members
3. Frequency, signs and symptoms, and criteria adopted for long COVID-19: A systematic review
4. Long COVID in children: Partnerships between families and paediatricians are a priority for better care
5. Dual inhibition of CB₁ receptors and iNOS, as a potential novel approach to the pharmacological management of acute and long COVID-19
6. A national survey of community rehabilitation service provision for people with long Covid in Scotland
7. Legacy of COVID-19 infection in children: Long-COVID will have a lifelong health/economic impact
8. Long COVID-19: an emerging pandemic in itself
9. Follow-up of functional exercise capacity in patients with COVID-19: It is improved by telerehabilitation.
10. Outcomes of extracorporeal membrane oxygenation in acute respiratory distress syndrome due to COVID-19: The lessons learned from the first wave of COVID-19.
11. Hand grip strength before and after SARS-CoV-2 infection in community-dwelling older adults.
12. Phase-Adapted Rehabilitation for Acute Coronavirus Disease-19 Patients and Patient With Long-term Sequelae of Coronavirus Disease-19.
13. Do Patients With COVID-19 Benefit from Rehabilitation? Functional Outcomes of the First 100 Patients in a COVID-19 Rehabilitation Unit.
14. Swallowing and Voice Outcomes in Patients Hospitalized With COVID-19: An Observational Cohort Study.
15. Health-related quality of life of COVID-19 patients after discharge: A multicenter follow-up study.
16. Recovery from Coronavirus Disease 2019 among Older Adults in Post-Acute Skilled Nursing Facilities.
17. Post--COVID-19 Acute Disseminated Encephalomyelitis in a 17-Month-Old.
18. Functional outcomes and post-discharge care sought by patients with COVID-19 compared to matched controls after completing inpatient acute rehabilitation.
19. The Long and the Short of It: Is "Long COVID" More Than Slow Resolution of the Acute Disease?
20. A conceptual framework to accelerate the clinical impact of evolving research into long COVID
21. Humility and Acceptance: Working Within Our Limits With Long COVID and Myalgic Encephalomyelitis/Chronic Fatigue Syndrome.
22. Long covid: coding is caring.



23. Risk of clinical sequelae after the acute phase of SARS-CoV-2 infection: retrospective cohort study.
24. Use patient reported outcome measures (PROMs) in treatment of long covid.
25. Long-term effects of COVID-19 on kidney function - Authors' reply.
26. Long-term effects of COVID-19 on kidney function.
27. Support and follow-up needs of patients discharged from intensive care after severe COVID-19: a mixed-methods study of the views of UK general practitioners and intensive care staff during the pandemic's first wave.
28. COVID-19 and Post-intensive Care Syndrome: Community-Based Care for ICU Survivors.
29. Pan-European Study on Functional and Medical Recovery and Geriatric Rehabilitation Services of Post-COVID-19 Patients: Protocol of the EU-COGER Study.
30. The central role of amygdala in stress-related cardiac diseases and an update on long-COVID
31. Living with long Covid: some reflections 14 months down the line
32. Therapeutic respiratory and functional rehabilitation protocol for intensive care unit patients affected by COVID-19: a structured summary of a study protocol for a randomised controlled trial.
33. Four-Month Clinical Status of a Cohort of Patients After Hospitalization for COVID-19.
34. Covid-19: One in three has neurological or psychiatric condition diagnosed after covid infection, study finds.
35. Fresh evidence of the scale and scope of long covid.
36. A Multidisciplinary NHS COVID-19 Service to Manage Post-COVID-19 Syndrome in the Community.
37. Mortality and Readmission Rates Among Patients With COVID-19 After Discharge From Acute Care Setting With Supplemental Oxygen.
38. Patients recovering from COVID-19 pneumonia in sub-acute care exhibit severe frailty: Role of the nurse assessment.
39. ASSESSMENT OF REHABILITATION NEEDS IN PATIENTS DURING AND AFTER COVID-19: DEVELOPMENT OF THE COVID-19-REHABILITATION NEEDS SURVEY.
40. Acute necrotizing glomerulonephritis associated with COVID-19 infection: report of two pediatric cases.
41. Post-acute COVID-19 syndrome
42. Post-covid syndrome in individuals admitted to hospital with covid-19: retrospective cohort study.
43. Covid-19: Middle aged women face greater risk of debilitating long term symptoms.
44. Children and the return to school: how much should we worry about covid-19 and long covid?
45. Long-haul COVID: heed the lessons from other infection-triggered illnesses.
46. Multiorgan impairment in low-risk individuals with post-COVID-19 syndrome: a prospective, community-based study.



47. Long COVID and the role of physical activity: a qualitative study.
48. In This for the Long Haul: Ethics, COVID-19, and Rehabilitation.
49. Vaccinating children to prevent long covid? More caution is needed in interpreting current epidemiological data.
50. Covid-19: Recognise long covid as occupational disease and compensate frontline workers, say MPs.
51. Long covid: WHO calls on countries to offer patients more rehabilitation.
52. Long COVID guidelines need to reflect lived experience.
53. Decoding the unknowns in long covid.
54. Distorted chemosensory perception and female sex associate with persistent smell and/or taste loss in people with SARS-CoV-2 antibodies: a community based cohort study investigating clinical course and resolution of acute smell and/or taste loss in people with and without SARS-CoV-2 antibodies in London, UK.
55. Persistent Brainstem Dysfunction in Long-COVID: A Hypothesis



1. Rehabilitation in adult post-COVID-19 patients in post-acute care with Therapeutic Exercise.

Author(s): Udina, C; Ars, J; Morandi, A; Vilaró, J; Cáceres, C; Inzitari, M

Source: The Journal of frailty & aging; 2021; vol. 10 (no. 3); p. 297-300

Publication Date: 2021

Publication Type(s): Journal Article

PubMedID: 34105716

Available at [The Journal of frailty & aging](#) - from Unpaywall

Abstract: COVID-19 patients may experience disability related to Intensive Care Unit (ICU) admission or due to immobilization. We assessed pre-post impact on physical performance of multi-component therapeutic exercise for post-COVID-19 rehabilitation in a post-acute care facility. A 30-minute daily multicomponent therapeutic exercise intervention combined resistance, endurance and balance training. Outcomes: Short Physical Performance Battery; Barthel Index, ability to walk unassisted and single leg stance. Clinical, functional and cognitive variables were collected. We included 33 patients (66.2±12.8 years). All outcomes improved significantly in the global sample ($p<0.01$). Post-ICU patients, who were younger than No ICU ones, experienced greater improvement in SPPB (4.4±2.1 vs 2.5±1.7, $p<0.01$) and gait speed (0.4±0.2 vs 0.2±0.1 m/sec, $p<0.01$). In conclusion, adults surviving COVID-19 improved their functional status, including those who required ICU stay. Our results emphasize the need to establish innovative rehabilitative strategies to reduce the negative functional outcomes of COVID-19.

Database: Medline

2. Recovery from COVID-19: A sprint or marathon? 6-month follow-up data from online long COVID-19 support group members

Author(s): Vaes A.W.; Goertz Y.M.J.; van Herck M.; Machado F.V.C.; Meys R.; Delbressine J.M.; Houben-Wilke S.; Posthuma R.; van Loon N.P.H.; Franssen F.M.E.; Hajian B.; Janssen D.J.A.; Spruit M.A.; Simons S.O.; Wesseling G.; Burtin C.; Gaffron S.; Maier D.; Spaetgens B.; Pinxt C.M.H.; Liu L.Y.L.; van Boven J.F.M.; Klok F.A.; Spies Y.; Vijlbrief H.; van't Hul A.J.

Source: ERJ Open Research; 2021; vol. 7 (no. 2)

Publication Date: 2021

Publication Type(s): Article

Available at [ERJ open research](#) - from Europe PubMed Central - Open Access

Available at [ERJ open research](#) - from HighWire - Free Full Text

Available at [ERJ open research](#) - from Unpaywall

Abstract:

Background: It remains unknown whether and to what extent members of online "long COVID" peer support groups remain symptomatic and limited over time. Therefore, we aimed to evaluate symptoms in members of online long COVID peer support groups up to 6 months after the onset of coronavirus disease 2019 (COVID-19)-related symptoms.

Method(s): Demographics, symptoms, health status, work productivity, functional status and health-related quality of life were assessed about 3 and 6 months after the onset of COVID-19-related symptoms in members of online long COVID peer support groups.

Result(s): Data from 239 patients with a confirmed COVID-19 diagnosis (83% women; median (interquartile range) age 50 (39-56) years) were analysed. During the infection, a median (interquartile range) of 15 (11-18) symptoms was reported, which was significantly lower 3 and 6 months later: 6 (4-9) and 6 (3-8), respectively ($p<0.05$). From 3 to 6 months follow-up, the proportion of patients without symptoms increased from 1.3% to only 5.4% ($p<0.001$). Patients also reported a significantly improved work productivity (work absenteeism and presenteeism: 73% versus 52% and 66% versus 60%, respectively), self-reported good health (9.2% versus 16.7%), functional status (mean±SD Post-COVID-19 Functional Status scale: 2.4±0.9 versus 2.2±1.0) and health-related quality of life (all $p<0.05$).

Conclusion(s): Although patients with confirmed COVID-19, who were all members of online long COVID peer



support groups, reported significant improvements in work productivity, functional status and quality of life between 3 and 6 months follow-up, these data clearly highlight the long-term impact of COVID-19, as approximately 6 months after the onset of COVID-19-related symptoms a large proportion still experienced persistent symptoms, a moderate-to-poor health, moderate-to-severe functional limitations, considerable loss in work productivity, and/or an impaired quality of life. Action is needed to improve the management and healthcare of these patients. Copyright © The authors 2021.

Database: EMBASE

3. Frequency, signs and symptoms, and criteria adopted for long COVID-19: A systematic review

Author(s): Cabrera Martimbianco A.L.; Pacheco R.L.; Bagattini A.M.; Riera R.

Source: International Journal of Clinical Practice; 2021

Publication Date: 2021

Publication Type(s): Review

PubMedID: 33977626

Available at [International journal of clinical practice](#) - from Wiley Online Library

Available at [International journal of clinical practice](#) - from Unpaywall

Abstract:

Aims: To identify, systematically evaluate and summarise the best available evidence on the frequency of long COVID-19 (post-acute COVID-19 syndrome), its clinical manifestations, and the criteria used for diagnosis.

Method(s): Systematic review conducted with a comprehensive search including formal databases, COVID-19 or SARS-CoV-2 data sources, grey literature, and manual search. We considered for inclusion clinical trials, observational longitudinal comparative and non-comparative studies, cross-sectional, before-and-after, and case series. We assessed the methodological quality by specific tools based on the study designs. We presented the results as a narrative synthesis regarding the frequency and duration of long COVID-19, signs and symptoms, criteria used for diagnosis, and potential risk factors.

Result(s): We included 25 observational studies with moderate to high methodological quality, considering 5440 participants. The frequency of long COVID-19 ranged from 4.7% to 80%, and the most prevalent signs/symptoms were chest pain (up to 89%), fatigue (up to 65%), dyspnea (up to 61%), and cough and sputum production (up to 59%). Temporal criteria used to define long COVID-19 varied from 3 to 24 weeks after acute phase or hospital discharge. Potentially associated risk factors were old age, female sex, severe clinical status, a high number of comorbidities, hospital admission, and oxygen supplementation at the acute phase. However, limitations related to study designs added uncertainty to this finding. None of the studies assessed the duration of signs/symptoms.

Conclusion(s): The frequency of long COVID-19 reached up to 80% over the studies included and occurred between 3 and 24 weeks after acute phase or hospital discharge. Chest pain, fatigue, dyspnea, and cough were the most reported clinical manifestations attributed to the condition. Based on these systematic review findings, there is an urgent need to understand this emerging, complex and challenging medical condition. Proposals for diagnostic criteria and standard terminology are welcome. Copyright © 2021 John Wiley & Sons Ltd

Database: EMBASE

4. Long COVID in children: Partnerships between families and paediatricians are a priority for better care

Author(s): Buonsenso D.; De Rose C.; Valentini P.; Vergari J.; Fusco C.

Source: Journal of Paediatrics and Child Health; 2021

Publication Date: 2021

Publication Type(s): Article

PubMedID: 34060675

Available at [Journal of paediatrics and child health](#) - from Wiley Online Library



Available at [Journal of paediatrics and child health](#) - from Unpaywall

Database: EMBASE

5. Dual inhibition of CB₁ receptors and iNOS, as a potential novel approach to the pharmacological management of acute and long COVID-19

Author(s): Cinar R.; Iyer M.R.; Kunos G.

Source: British Journal of Pharmacology; 2021

Publication Date: 2021

Publication Type(s): Article

PubMedID: 33769552

Available at [British journal of pharmacology](#) - from Wiley Online Library

Available at [British journal of pharmacology](#) - from Unpaywall

Abstract: COVID-19 (SARS-CoV-2) causes multiple inflammatory complications, resulting not only in severe lung inflammation but also harm to other organs. Although the current focus is on the management of acute COVID-19, there is growing concern about long-term effects of COVID-19 (Long Covid), such as fibroproliferative changes in the lung, heart and kidney. Therefore, the identification of therapeutic targets not only for the management of acute COVID-19 but also for preventing Long Covid are needed, and would mitigate against long-lasting health burden and economic costs, in addition to saving lives. COVID-19 induces pathological changes via multiple pathways, which could be targeted simultaneously for optimal effect. We discuss the potential pathologic function of increased activity of the endocannabinoid/CB₁ receptor system and inducible NO synthase (iNOS). We advocate a polypharmacology approach, wherein a single chemical entity simultaneously interacts with CB₁ receptors and iNOS causing inhibition, as a potential therapeutic strategy for COVID-19-related health complications. Copyright Published 2021. This article is a U.S. Government work and is in the public domain in the USA.

Database: EMBASE

6. A national survey of community rehabilitation service provision for people with long Covid in Scotland

Author(s): Duncan E.; Cowie J.; Preston J.; Cooper K.; Alexander L.; Morris J.

Source: F1000 Research; 2021; vol. 9

Publication Date: 2021

Publication Type(s): Article

Available at [F1000Research](#) - from Europe PubMed Central - Open Access

Available at [F1000Research](#) - from Unpaywall

Abstract:

Background: Over 50 million cases of COVID-19 have been confirmed globally as of November 2020. Evidence is rapidly emerging on the epidemiology of COVID-19, and its impact on individuals and potential burden on health services and society. Between 10-35% of people with COVID-19 may experience post-acute long Covid. This currently equates to between 8,129 and 28,453 people in Scotland. Some of these people will require rehabilitation to support their recovery. Currently, we do not know how to optimally configure community rehabilitation services for people with long Covid.

Method(s): This national survey aimed to provide a detailed description of current community rehabilitation provision for people with long Covid in Scotland. We developed, piloted, and conducted a national electronic survey of current community rehabilitation service provision for people presenting with long Covid symptomatology. Our sample were the Allied Health Professions Directors of all 14 territorial NHS Health Boards in Scotland. Fixed response and narrative data were analysed descriptively.

Result(s): Responses were received from all respondents (14/14), enabling a national picture to be gained. Almost all Health Boards (13/14) currently deliver rehabilitation for people with long Covid within pre-existing services. Fatigue



(11/14) and respiratory conditions (9/14) were the two most common presenting problems of patients. Most long Covid community rehabilitation services are delivered through a combination of face-to-face and digital contact (13/14).

Conclusion(s): Community rehabilitation for people with long Covid is an emerging reality. This survey provides a national picture of current community rehabilitation for people with long Covid. We do not know how community rehabilitation can be optimally delivered for this population. This is vital as community rehabilitation services were already under pressure prior to the emergence of COVID-19. Further research is urgently required to investigate the implementation, outcomes and cost-effectiveness of differing models of community rehabilitation for this patient population. Copyright © 2021 Duncan E et al.

Database: EMBASE

7. Legacy of COVID-19 infection in children: Long-COVID will have a lifelong health/economic impact

Author(s): Munblit D.; Warner J.O.; Dunn-Galvin A.; Simpson F.; Mabbitt J.; Semple C.

Source: Archives of Disease in Childhood; 2021

Publication Date: 2021

Publication Type(s): Note

PubMedID: 34045207

Available at [Archives of disease in childhood](#) - from BMJ Journals

Available at [Archives of disease in childhood](#) - from Unpaywall

Database: EMBASE

8. Long COVID-19: an emerging pandemic in itself

Author(s): Iyengar K.P.; Jain V.K.; Vaishya R.; Ish P.

Source: Advances in respiratory medicine; 2021; vol. 89 (no. 2); p. 234-236

Publication Date: 2021

Publication Type(s): Letter

PubMedID: 33966266

Available at [Advances in respiratory medicine](#) - from EBSCO (MEDLINE Complete)

Available at [Advances in respiratory medicine](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Advances in respiratory medicine](#) - from Unpaywall

Database: EMBASE

9. Follow-up of functional exercise capacity in patients with COVID-19: It is improved by telerehabilitation.

Author(s): Martin, Ines; Braem, Fred; Baudet, Lia; Poncin, William; Fizaine, Stéphane; Aboubakar, Frank; Froidure, Antoine; Pilette, Charles; Liistro, Giuseppe; De Greef, Julien; Yildiz, Halil; Pothen, Lucie; Yombi, Jean-Cyr; Belkhir, Leïla; Reychler, Gregory

Source: Respiratory medicine; Jul 2021; vol. 183 ; p. 106438

Publication Date: Jul 2021

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Observational Study

PubMedID: 33964817

Available at [Respiratory medicine](#) - from Unpaywall

Abstract:



BACKGROUND: The impact of the COVID-19 pandemic on functional exercise capacity seemed quickly clinically evident. The objective of this study was to assess the functional exercise capacity of patients with severe COVID-19 and to evaluate the effect of a telerehabilitation program in the specific context of the COVID-19 pandemic.

METHOD: Patients hospitalized for severe or critical COVID-19 were recruited. The functional exercise capacity (1-min sit-to-stand test (STST)) was prospectively quantified at discharge. A telerehabilitation program was then proposed. A control group was composed with the patients refusing the program.

RESULTS: At discharge, none of the 48 recruited patients had a STST higher than the 50th percentile and 77% of them were below the 2.5th percentile. SpO₂ was 92.6 ± 3.0% after STST and 15 patients had oxygen desaturation. After 3-months of follow-up, the number of repetitions during STST significantly increased either in telerehabilitation (n = 14) (p < 0.001) or in control groups (n = 13) (p = 0.002) but only one patient had a result higher than the 50th percentile (in Telerehabilitation group) and 37% of them were still under the 2.5th percentile for this result. The improvement was significantly and clinically greater after the telerehabilitation program (p = 0.005). No adverse events were reported by the patients during the program.

CONCLUSIONS: Patients hospitalized for COVID-19 have a low functional exercise capacity at discharge and the recovery after three months is poor. The feasibility and the effect of a simple telerehabilitation program were verified, this program being able to substantially improve the functional recovery after three months.

Database: Medline

10. Outcomes of extracorporeal membrane oxygenation in acute respiratory distress syndrome due to COVID-19: The lessons learned from the first wave of COVID-19.

Author(s): Blazoski, Cameron; Baram, Michael; Hirose, Hitoshi

Source: Journal of cardiac surgery; Jul 2021; vol. 36 (no. 7); p. 2219-2224

Publication Date: Jul 2021

Publication Type(s): Journal Article

PubMedID: 33738855

Available at [Journal of cardiac surgery](#) - from Wiley Online Library

Available at [Journal of cardiac surgery](#) - from Unpaywall

Abstract:

INTRODUCTION: Extracorporeal membrane oxygenation (ECMO) has been used as a refractory treatment for acute respiratory distress syndrome (ARDS) due to coronavirus disease 2019 (COVID-19), but there has been little evidence of its efficacy. We conducted this study to share our experience using ECMO as a bridge to recovery for ARDS due to COVID-19.

METHODS: All adult patients who were placed on ECMO for ARDS due to COVID-19 between April 2020 and June 2020 (during the first wave of COVID-19) were identified. The clinical characteristics and outcomes of these patients were analyzed with a specific focus on the differences between patients who survived to hospital discharge and those who did not.

RESULTS: In total, 20 COVID-19 patients were included in this study. All patients were placed on veno-veno ECMO. Comparing survivors and non-survivors, older age was found to be associated with hospital mortality (p = .02). The following complications were observed: renal failure requiring renal replacement therapy (35%, n = 7), bacteremia during ECMO (20%, n = 4), coinfection with bacterial pneumonia (15%, n = 3), cannula site bleeding (15%, n = 3), stroke (10%, n = 2), gastrointestinal bleeding (10%, n = 2), and liver failure (5%, n = 1). The complications associated with patient mortality were culture-positive septic shock (p = .01), culture-negative systemic inflammatory response syndrome (p = .01), and renal failure (p = .01). The causes of death were septic shock (44%, n = 4), culture-negative systemic inflammatory response syndrome (44%, n = 4), and stroke (11%, n = 1).

CONCLUSIONS: Based on our experience, ECMO can improve refractory ARDS due to COVID-19 in select patients. Proper control of bacterial infections during COVID-19 immunomodulation therapy may be critical to improving survival.

Database: Medline



11. Hand grip strength before and after SARS-CoV-2 infection in community-dwelling older adults.

Author(s): Del Brutto, Oscar H; Mera, Robertino M; Pérez, Pedro; Recalde, Betsy Y; Costa, Aldo F; Sedler, Mark J

Source: Journal of the American Geriatrics Society; Jun 2021

Publication Date: Jun 2021

Publication Type(s): Journal Article

PubMedID: 34124775

Available at [Journal of the American Geriatrics Society](#) - from Wiley Online Library

Abstract:

OBJECTIVE: To assess the association between SARS-CoV-2 infection and decreased hand grip strength (HGS).

DESIGN: Longitudinal population-based study.

SETTING: Community-dwelling older adults (aged ≥ 60 years) living in a rural Ecuadorian village struck by the SARS-CoV-2 pandemic.

PARTICIPANTS: Of 282 enrolled individuals, 254 (90%) finished the study.

MEASUREMENTS: HGS was measured three months before (January, 2020) and nine months after the introduction of the virus into the population (January, 2021). SARS-CoV-2 antibody testing was performed in two rounds: in May-June (early) and September-November (late), 2020. An independent association between SARS-CoV-2 infection and HGS decline was assessed by fitting linear mixed models for longitudinal data. Changes in HGS scores in SARS-CoV-2 seropositive subjects, according to the time elapsed since seroconversion, were compared to those who remained seronegative.

RESULTS: Overall, 149 (59%) individuals became seropositive for SARS-CoV-2. The mean HGS (in kg) was 25.3 ± 8.3 at baseline and 23.7 ± 8.1 at follow-up ($p = 0.028$), with 140 individuals having $>5\%$ HGS decline between both measurements. The follow-up HGS measurement decreased by 1.72 kg in seropositive individuals, and by 0.57 kg in their seronegative counterparts ($p < 0.05$ HGS decline at the time of the follow-up than those with later, i.e., more recent, infections).

CONCLUSIONS: This study shows an independent deleterious impact of SARS-CoV-2 on HGS that is more marked among individuals with infections that occurred more than eight months after infection. Results suggest the possibility of chronic damage to skeletal muscles by SARS-CoV-2.

Database: Medline

12. Phase-Adapted Rehabilitation for Acute Coronavirus Disease-19 Patients and Patient With Long-term Sequelae of Coronavirus Disease-19.

Author(s): Gutenbrunner ; Nugraha, Boya; Martin, Lidia Teixido

Source: American Journal of Physical Medicine & Rehabilitation; Jun 2021; vol. 100 (no. 6); p. 533-538

Publication Date: Jun 2021

Publication Type(s): Academic Journal

Available at [American journal of physical medicine & rehabilitation](#) - from Unpaywall

Abstract: Since the beginning of the COVID-19 pandemic in early 2020, many papers have highlighted the need for the rehabilitation of patients with SARS-CoV-2 infection. Most papers refer to the need for respiratory rehabilitation in the acute phase; however, the fact that the infection also affects other organ systems has to be considered in rehabilitation interventions. Long-term symptoms in many cases severely limit activity and participation and alter quality of life, leading to rehabilitation needs. This article proposes a phase-adapted model of linking the acute, postacute, and long-term symptoms of COVID-19 with the well-established matrix of acute, postacute, and long-term rehabilitation services. A review of currently available recommendations for phase-adapted rehabilitation strategies, including the relevance of prehabilitation within this context, is provided.



Database: CINAHL

13. Do Patients With COVID-19 Benefit from Rehabilitation? Functional Outcomes of the First 100 Patients in a COVID-19 Rehabilitation Unit.

Author(s): Piquet ; Luczak, Cédric; Seiler, Fabien; Monaury, Jordan; Martini, Alexandre; Ward, Anthony B.; Gracies, Jean-Michel; Motavasseli, Damien

Source: Archives of Physical Medicine & Rehabilitation; Jun 2021; vol. 102 (no. 6); p. 1067-1074

Publication Date: Jun 2021

Publication Type(s): Academic Journal

Available at [Archives of Physical Medicine and Rehabilitation](#) - from Unpaywall

Abstract: To determine the benefits associated with brief inpatient rehabilitation for coronavirus 2019 (COVID-19) patients. Retrospective chart review. A newly created specialized rehabilitation unit in a tertiary care medical center. Consecutive sample of patients (N=100) with COVID-19 infection admitted to rehabilitation. Inpatient rehabilitation for postacute care COVID-19 patients. Measurements at admission and discharge comprised a Barthel Activities of Daily Living Index (including baseline value before COVID-19 infection), time to perform 10 sit-to-stands with associated cardiorespiratory changes, and grip strength (dynamometry). Correlations between these outcomes and the time spent in the intensive care unit (ICU) were explored. Upon admission to rehabilitation, 66% of the patients were men, the age was 66±22 years, mean delay from symptom onset was 20.4±10.0 days, body mass index was 26.0±5.4 kg/m², 49% had hypertension, 29% had diabetes, and 26% had more than 50% pulmonary damage on computed tomographic scans. The mean length of rehabilitation stay was 9.8±5.6 days. From admission to discharge, the Barthel index increased from 77.3±26.7 to 88.8±24.5 (P <.001), without recovering baseline values (94.5±16.2; P <.001). There was a 37% improvement in sit-to-stand frequency (0.27±0.16 to 0.37±0.16 Hz; P <.001), a 13% decrease in post-test respiratory rate (30.7±12.6 to 26.6±6.1; P =.03), and a 15% increase in grip strength (18.1±9.2 to 20.9±8.9 kg; P <.001). At both admission and discharge, Barthel score correlated with grip strength (ρ=0.39-0.66; P <.01), which negatively correlated with time spent in the ICU (ρ=-0.57 to -0.49; P <.05). Inpatient rehabilitation for COVID-19 patients was associated with substantial motor, respiratory, and functional improvement, especially in severe cases, although there remained mild persistent autonomy loss upon discharge. After acute stages, COVID-19, primarily a respiratory disease, might convert into a motor impairment correlated with the time spent in intensive care. • After COVID-19, responsiveness to inpatient rehabilitation should be determined. • A 10-day stay using predominantly motor rehabilitation improves functional outcomes. • Improvement rates were greater in more severely affected patients upon admission. • Premorbid autonomy was not fully restored after brief inpatient rehabilitation. • COVID-19, a primarily respiratory disease, triggers lasting motor complications.

Database: CINAHL

14. Swallowing and Voice Outcomes in Patients Hospitalized With COVID-19: An Observational Cohort Study.

Author(s): Archer ; Iezzi, Christina M.; Gilpin, Louisa

Source: Archives of Physical Medicine & Rehabilitation; Jun 2021; vol. 102 (no. 6); p. 1084-1090

Publication Date: Jun 2021

Publication Type(s): Academic Journal

Available at [Archives of Physical Medicine and Rehabilitation](#) - from Unpaywall

Abstract: To evaluate the presentations and outcomes of inpatients with coronavirus disease 2019 (COVID-19) presenting with dysphonia and dysphagia to investigate trends and inform potential pathways for ongoing care. Observational cohort study. An inner-city National Health Service Hospital Trust in London, United Kingdom. All adult inpatients hospitalized with COVID-19 (N=164) who were referred to Speech and Language Therapy (SLT) for voice and/or swallowing assessment for 2 months starting in April 2020. SLT assessment, advice, and therapy for dysphonia and dysphagia. Evidence of delirium, neurologic presentation, intubation, tracheostomy, and proning history were collected, along with type of SLT provided and discharge outcomes. Therapy outcome measures were recorded for swallowing and tracheostomy pre- and post-SLT intervention and Grade Roughness Breathiness



Asthenia Strain Scale for voice. Patients (N=164; 104 men) aged 56.8±16.7 years were included. Half (52.4%) had a tracheostomy, 78.7% had been intubated (mean, 15±6.6d), 13.4% had new neurologic impairment, and 69.5% were delirious. Individualized compensatory strategies were trialed in all and direct exercises with 11%. Baseline assessments showed marked impairments in dysphagia and voice, but there was significant improvement in all during the study (P <.0001). On average, patients started some oral intake 2 days after initial SLT assessment (interquartile range [IQR], 0-8) and were eating and drinking normally on discharge, but 29.3% (n=29) of those with dysphagia and 56.1% (n=37) of those with dysphonia remained impaired at hospital discharge. A total of 70.9% tracheostomized patients were decannulated, and the median time to decannulation was 19 days (IQR, 16-27). Among the 164 patients, 37.3% completed SLT input while inpatients, 23.5% were transferred to another hospital, 17.1% had voice, and 7.8% required community follow-up for dysphagia. Inpatients with COVID-19 present with significant impairments of voice and swallowing, justifying responsive SLT. Prolonged intubations and tracheostomies were the norm, and a minority had new neurologic presentations. Patients typically improved with assessment that enabled treatment with individualized compensatory strategies. Services preparing for COVID-19 should target resources for tracheostomy weaning and to enable responsive management of dysphagia and dysphonia with robust referral pathways.

Database: CINAHL

15. Health-related quality of life of COVID-19 patients after discharge: A multicenter follow-up study.

Author(s): Qu ; Zhen, Qi; Wang, Wenjun; Fan, Song; Wu, Qibing; Zhang, Chengyuan; Li, Bao; Liu, Gang; Yu, Yafen; Li, Yonghuai; Yong, Liang; Lu, Baojing; Ding, Zhen; Ge, Huiyao; Mao, Yiwen; Chen, Weiwei; Xu, Qiongqiong; Zhang, Ruixue; Cao, Lu; Chen, Shirui

Source: Journal of Clinical Nursing (John Wiley & Sons, Inc.); Jun 2021; vol. 30 (no. 11/12); p. 1742-1750

Publication Date: Jun 2021

Publication Type(s): Academic Journal

Available at [Journal of clinical nursing](#) - from Wiley Online Library

Available at [Journal of clinical nursing](#) - from Unpaywall

Abstract:

Aims and Objectives: To determine the health-related quality of life (HRQoL) of COVID-19 patients after discharge and its predicting factors.

Background: COVID-19 has caused a worldwide pandemic and led a huge impact on the health of human and daily life. It has been demonstrated that physical and psychological conditions of hospitalised COVID-19 patients are impaired, but the studies focus on physical and psychological conditions of COVID-19 patients after discharge from hospital are rare.

Design: A multicentre follow-up study.

Methods: This was a multicentre follow-up study of COVID-19 patients who had discharged from six designated hospitals. Physical symptoms and HRQoL were surveyed at first follow-up (the third month after discharge). The latest multiple laboratory findings were collected through medical examination records. This study was performed and reported in accordance with STROBE checklist.

Results: Three hundred eleven patients (57.6%) were reported with one or more physical symptoms. The scores of HRQoL of COVID-19 patients at third month after discharge, except for the dimension of general health, were significantly lower than Chinese population norm (p <.001). Results of logistic regression showed that female (odds ratio (OR): 1.79, 95% confidence interval (CI): 1.04–3.06), older age (≥60 years) (OR: 2.44, 95% CI: 1.33–4.47) and the physical symptom after discharge (OR: 40.15, 95% CI: 9.68–166.49) were risk factors for poor physical component summary; the physical symptom after discharge (OR: 6.68, 95% CI: 4.21–10.59) was a risk factor for poor mental component summary.

Conclusions: Health-related quality of life of discharged COVID-19 patients did not come back to normal at third month after discharge and affected by age, sex and the physical symptom after discharge. Relevance to clinical practice: Healthcare workers should pay more attention to the physical and psychological rehabilitation of



discharged COVID-19 patients. Long-term follow-up on COVID-19 patients after discharge is needed to determine the long-term impact of COVID-19.

Database: CINAHL

16. Recovery from Coronavirus Disease 2019 among Older Adults in Post-Acute Skilled Nursing Facilities.

Author(s): Shi ; Lo, On-Yee; Newmeyer, Natalie; Bakaev, Innokentiy; Kim, Dae Hyun

Source: Journal of the American Medical Directors Association; Jun 2021; vol. 22 (no. 6); p. 1138-1138

Publication Date: Jun 2021

Publication Type(s): Academic Journal

Available at [Journal of the American Medical Directors Association](#) - from Unpaywall

Abstract:To examine functional outcomes of post-acute care for coronavirus disease 2019 (COVID-19) in skilled nursing facilities (SNFs). Retrospective cohort. Seventy-three community-dwelling adults ≥ 65 years of age admitted for post-acute care from 2 SNFs from March 15, 2020, to May 30, 2020. COVID-19 status was determined from chart review. Frailty was measured with a deficit accumulation frailty index (FI), categorized into nonfrail, mild frailty, and moderate-to-severe frailty. The primary outcome was community discharge. Secondary outcomes included change in functional status from SNF admission to discharge, based on modified Barthel index (mBI) and continuous functional scale scored by physical (PT) and occupational therapists (OT). Among 73 admissions (31 COVID-19 negative, 42 COVID-19 positive), mean [standard deviation (SD)] age was 83.5 (8.8) and 42 (57.5%) were female, with mean FI of 0.31 (0.01) with no differences by COVID-19 status. The mean length of SNF stay for rehabilitation was 21.2 days (SD 11.1) for COVID-19 negative with 20 (64.5%) patients discharged to community, compared to 23.0 (SD 12.2) and 31 (73.8%) among patients who tested positive for COVID-19. Among those discharged to the community, all groups improved in mBI, PT, and OT score. Those with moderate-to-severe frailty (FI >0.35) had lower mBI scores on discharge [92.0 (6.7) not frail, 81.0 (15.4) mild frailty, 48.6 (20.4) moderate-to-severe frailty; $P = .002$], lower PT scores on discharge [54.2 (3.9) nonfrail, 51.5 (8.0) mild frailty, 37.1 (9.7) moderate-to-severe frailty; $P = .002$], and lower OT score on discharge [52.9 (3.2) nonfrail, 45.8 (9.4) mild frailty, 32.4 (7.4) moderate or worse frailty; $P = .001$]. Older adults admitted to a SNF for post-acute care with COVID-19 had community discharge rates and functional improvement comparable to a COVID-19 negative group. However, those who are frailer at admission tended to have lower function at discharge.

Database: CINAHL

17. Post--COVID-19 Acute Disseminated Encephalomyelitis in a 17-Month-Old.

Author(s): McLendon ; Rao, Chethan K.; Da Hora, Cintia Carla; Islamovic, Florinda; Galan, Fernando N.

Source: Pediatrics; Jun 2021; vol. 147 (no. 6); p. 1-5

Publication Date: Jun 2021

Publication Type(s): Academic Journal

Available at [Pediatrics](#) - from Unpaywall

Abstract: Neurologic manifestations of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) infection in pediatric patients have been reported in the acute and postinfectious stages of coronavirus disease 2019. Acute disseminated encephalomyelitis (ADEM) typically presents in children after a viral illness at a mean age of 3 to 7 years. A total of 60% to 90% of literature-reported pediatric patients with ADEM have minimal to no neurologic deficits at longterm follow-up. We present a 17-month-old developmentally typical girl with parental complaints of irritability, upper extremity weakness, and gait disturbance. She presented to the hospital afebrile and irritable with right-sided nasolabial fold flattening, neck stiffness, left upper extremity rigidity, right upper extremity paresis, bilateral lower extremity hyperreflexia, and truncal ataxia. During her hospital course, she became somnolent with autonomic instability and was transferred to intensive care. Contrast-enhanced brain MRI revealed diffuse patchy T2 hyperintensities without contrast enhancement. Nasopharyngeal SARS-CoV-2 polymerase chain reaction and serum antibody testing results were positive. Cerebral spinal fluid analysis was unremarkable. Respiratory viral panel and



autoimmune encephalitis and demyelinating disorders panel results were negative. She was started on highdose methylprednisolone and intravenous immunoglobulin, with improvement in mental status, focal deficits, and ambulation. After hospital discharge, she received inpatient rehabilitation for 2 weeks and at 2 month follow-up had a full neurologic recovery. We report the youngest case of postinfectious ADEM due to SARS-CoV-2 in a toddler. Early recognition of autoimmune and inflammatory complications of SARS-CoV-2 is vital for early aggressive immunomodulatory treatment and, consequently, improved morbidity in these patients.

Database: CINAHL

18. Functional outcomes and post-discharge care sought by patients with COVID-19 compared to matched controls after completing inpatient acute rehabilitation.

Author(s): Jain ; Harmon, Erin Y.; Sonagere, Matthew B.

Source: PM & R: Journal of Injury, Function & Rehabilitation; Jun 2021; vol. 13 (no. 6); p. 618-625

Publication Date: Jun 2021

Publication Type(s): Academic Journal

Available at [PM & R : the journal of injury, function, and rehabilitation](#) - from Unpaywall

Database: CINAHL

19. The Long and the Short of It: Is "Long COVID" More Than Slow Resolution of the Acute Disease?

Author(s): Gandotra S.; Russell D.

Source: Annals of the American Thoracic Society; Jun 2021; vol. 18 (no. 6); p. 948-950

Publication Date: Jun 2021

Publication Type(s): Editorial

PubMedID: 34076561

Available at [Annals of the American Thoracic Society](#) - from Unpaywall

Database: EMBASE

20. A conceptual framework to accelerate the clinical impact of evolving research into long COVID

Author(s): Kondratiuk A.L.; Pillay T.D.; Kon O.M.; Lalvani A.

Source: The Lancet Infectious Diseases; Jun 2021; vol. 21 (no. 6); p. 756-757

Publication Date: Jun 2021

Publication Type(s): Note

PubMedID: 33894903

Available at [The Lancet. Infectious diseases](#) - from Unpaywall

Database: EMBASE

21. Humility and Acceptance: Working Within Our Limits With Long COVID and Myalgic Encephalomyelitis/Chronic Fatigue Syndrome.

Author(s): Décary, Simon; Gaboury, Isabelle; Poirier, Sabrina; Garcia, Christiane; Simpson, Scott; Bull, Michelle; Brown, Darren; Daigle, Frédérique

Source: The Journal of orthopaedic and sports physical therapy; May 2021; vol. 51 (no. 5); p. 197-200

Publication Date: May 2021

Publication Type(s): Editorial



PubMedID: 33930983

Available at [The Journal of orthopaedic and sports physical therapy](#) - from Unpaywall

Abstract:

SYNOPSIS: The term long COVID was coined by patients to describe the long-term consequences of COVID-19. One year into the pandemic, it was clear that all patients—those hospitalized with COVID-19 and those who lived with the disease in the community—were at risk of developing debilitating sequelae that would impact their quality of life. Patients with long COVID asked for rehabilitation. Many of them, including previously healthy and fit clinicians, tried to fight postviral fatigue with exercise-based rehabilitation. We observed a growing number of patients with long COVID who experienced adverse effects from exercise therapy and symptoms strikingly similar to those of myalgic encephalomyelitis (ME). Community-based physical therapists, including those in private practice, unaware of safety issues, are preparing to help an influx of patients with long COVID. In this editorial, we expose growing concerns about long COVID and ME. We issue safety recommendations for rehabilitation and share resources to improve care for those with postviral illnesses. *J Orthop Sports Phys Ther* 2021;51(5):197-200. doi:10.2519/jospt.2021.0106.

Database: Medline

22. Long covid: coding is caring.

Author(s): Mayor, Nikhil; Tsang, Ruby; Joy, Mark; Hobbs, Fd Richard; de Lusignan, Simon

Source: *BMJ (Clinical research ed.)*; May 2021; vol. 373 ; p. n1262

Publication Date: May 2021

Publication Type(s): Letter Comment

PubMedID: 34011495

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

23. Risk of clinical sequelae after the acute phase of SARS-CoV-2 infection: retrospective cohort study.

Author(s): Daugherty, Sarah E; Guo, Yinglong; Heath, Kevin; Dasmariñas, Micah C; Jubilo, Karol Giuseppe; Samranvedhya, Jirapat; Lipsitch, Marc; Cohen, Ken

Source: *BMJ (Clinical research ed.)*; May 2021; vol. 373 ; p. n1098

Publication Date: May 2021

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 34011492

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Abstract:

OBJECTIVE: To evaluate the excess risk and relative hazards for developing incident clinical sequelae after the acute phase of SARS-CoV-2 infection in adults aged 18-65.

DESIGN: Retrospective cohort study.

SETTING: Three merged data sources from a large United States health plan: a large national administrative claims database, an outpatient laboratory testing database, and an inpatient hospital admissions database.

PARTICIPANTS: Individuals aged 18-65 with continuous enrollment in the health plan from January 2019 to the date of a diagnosis of SARS-CoV-2 infection. Three comparator groups, matched by propensity score, to individuals infected with SARS-CoV-2: a 2020 comparator group, an historical 2019 comparator group, and an historical comparator group with viral lower respiratory tract illness.



MAIN OUTCOME MEASURES: More than 50 clinical sequelae after the acute phase of SARS-CoV-2 infection (defined as the date of first SARS-CoV-2 diagnosis (index date) plus 21 days) were identified using ICD-10 (international classification of diseases, 10th revision) codes. Excess risk in the four months after acute infection and hazard ratios with Bonferroni corrected 95% confidence intervals were calculated.

RESULTS: 14% of adults aged ≤ 65 who were infected with SARS-CoV-2 (27 074 of 193 113) had at least one new type of clinical sequelae that required medical care after the acute phase of the illness, which was 4.95% higher than in the 2020 comparator group. The risk for specific new sequelae attributable to SARS-Cov-2 infection after the acute phase, including chronic respiratory failure, cardiac arrhythmia, hypercoagulability, encephalopathy, peripheral neuropathy, amnesia (memory difficulty), diabetes, liver test abnormalities, myocarditis, anxiety, and fatigue, was significantly greater than in the three comparator groups (2020, 2019, and viral lower respiratory tract illness groups) (all $P < 0.001$). Significant risk differences because of SARS-CoV-2 infection ranged from 0.02 to 2.26 per 100 people (all $P < 0.001$), and hazard ratios ranged from 1.24 to 25.65 compared with the 2020 comparator group.

CONCLUSIONS: The results indicate the excess risk of developing new clinical sequelae after the acute phase of SARS-CoV-2 infection, including specific types of sequelae less commonly seen in other viral illnesses. Although individuals who were older, had pre-existing conditions, and were admitted to hospital because of covid-19 were at greatest excess risk, younger adults (aged ≤ 50), those with no pre-existing conditions, or those not admitted to hospital for covid-19 also had an increased risk of developing new clinical sequelae. The greater risk for incident sequelae after the acute phase of SARS-CoV-2 infection is relevant for healthcare planning.

Database: Medline

24. Use patient reported outcome measures (PROMs) in treatment of long covid.

Author(s): Berry, Philip

Source: BMJ (Clinical research ed.); May 2021; vol. 373 ; p. n1260

Publication Date: May 2021

Publication Type(s): Letter Comment

PubMedID: 34006526

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

25. Long-term effects of COVID-19 on kidney function - Authors' reply.

Author(s): Huang, Lixue; Gu, Xiaoying; Wang, Yeming; Huang, Chaolin; Cao, Bin

Source: Lancet (London, England); May 2021; vol. 397 (no. 10287); p. 1807-1808

Publication Date: May 2021

Publication Type(s): Letter Comment

PubMedID: 33992142

Available at [Lancet \(London, England\)](#) - from Unpaywall

Database: Medline

26. Long-term effects of COVID-19 on kidney function.

Author(s): Delanaye, Pierre; Huart, Justine; Bouquegneau, Antoine; Jouret, François

Source: Lancet (London, England); May 2021; vol. 397 (no. 10287); p. 1807

Publication Date: May 2021

Publication Type(s): Letter Comment



PubMedID: 33992143

Available at [Lancet \(London, England\)](#) - from Unpaywall

Database: Medline

27. Support and follow-up needs of patients discharged from intensive care after severe COVID-19: a mixed-methods study of the views of UK general practitioners and intensive care staff during the pandemic's first wave.

Author(s): Castro-Avila, Ana Cristina; Jefferson, Laura; Dale, Veronica; Bloor, Karen

Source: BMJ open; May 2021; vol. 11 (no. 5); p. e048392

Publication Date: May 2021

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 33980533

Available at [BMJ open](#) - from BMJ Journals

Available at [BMJ open](#) - from Europe PubMed Central - Open Access

Available at [BMJ open](#) - from HighWire - Free Full Text

Available at [BMJ open](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMJ open](#) - from ProQuest (MEDLINE with Full Text) - NHS Version

Available at [BMJ open](#) - from Unpaywall

Abstract:

OBJECTIVES: To identify follow-up services planned for patients with COVID-19 discharged from intensive care unit (ICU) and to explore the views of ICU staff and general practitioners (GPs) regarding these patients' future needs and care coordination.

DESIGN: This is a sequential mixed-methods study using online surveys and semistructured interviews. Interview data were inductively coded and thematically analysed. Survey data were descriptively analysed.

SETTING: GP surgeries and acute National Health Service Trusts in the UK.

PARTICIPANTS: GPs and clinicians leading care for patients discharged from ICU.

PRIMARY AND SECONDARY OUTCOMES: Usual follow-up practice after ICU discharge, changes in follow-up during the pandemic, and GP awareness of follow-up and support needs of patients discharged from ICU.

RESULTS: We obtained 170 survey responses and conducted 23 interviews. Over 60% of GPs were unaware of the follow-up services generally provided by their local hospitals and whether or not these were functioning during the pandemic. Eighty per cent of ICUs reported some form of follow-up services, with 25% of these suspending provision during the peak of the pandemic and over half modifying their provision (usually to provide the service remotely). Common themes relating to barriers to provision of follow-up were funding complexities, remit and expertise, and communication between ICU and community services. Discharge documentation was described as poor and lacking key information. Both groups mentioned difficulties accessing services in the community and lack of clarity about who was responsible for referrals and follow-up.

CONCLUSIONS: The pandemic has highlighted long-standing issues of continuity of care and complex funding streams for post-ICU follow-up care. The large cohort of ICU patients admitted due to COVID-19 highlights the need for improved follow-up services and communication between specialists and GPs, not only for patients with COVID-19, but for all those discharged from ICU.

Database: Medline

28. COVID-19 and Post-intensive Care Syndrome: Community-Based Care for ICU Survivors.

Author(s): Smith ; Lee, Alan Chong W.; Smith, James M.; Thiele, Alecia; Zeleznik, Hallie; Ohtake, Patricia J.

Source: Home Health Care Management & Practice; May 2021; vol. 33 (no. 2); p. 117-124



Publication Date: May 2021

Publication Type(s): Academic Journal

Available at [Home Health Care Management & Practice](#) - from Unpaywall

Abstract: Survivors of critical illness, including those with COVID-19, are likely to experience post-intensive care syndrome (PICS). PICS involves a constellation of physical, cognitive, and mental health problems that can occur following hospitalization in an intensive care unit (ICU). This focused review describes the impact of PICS on an individual's function, societal participation, and family. Specific evidence-based screening tools for in-home identification of the deficits associated with PICS are recommended. Recognition of PICS through early screening by home health care providers is crucial in order to assemble the physical rehabilitation, mental health, and community resources needed to mitigate the long-term effects of COVID-19 and other critical illnesses. This review concludes with further PICS resources for community-based providers to enhance their knowledge and expertise and to prepare them for caring for COVID-19 and other critical illness survivors.

Database: CINAHL

29. Pan-European Study on Functional and Medical Recovery and Geriatric Rehabilitation Services of Post-COVID-19 Patients: Protocol of the EU-COGER Study.

Author(s): Grund ; Caljouw, M. A. A.; Haaksma, M. L.; Gordon, A. L.; van Balen, R.; Bauer, J. M.; Schols, J. M. G. A.; Achterberg, W. P.

Source: Journal of Nutrition, Health & Aging; May 2021; vol. 25 (no. 5); p. 668-674

Publication Date: May 2021

Publication Type(s): Academic Journal

Available at [The journal of nutrition, health & aging](#) - from Unpaywall

Abstract:

Objectives: There is insufficient knowledge about the functional and medical recovery of older people infected with SARS-CoV-2. This study aims to gain insight into the course of functional and medical recovery of persons who receive geriatric rehabilitation (GR) following SARS-CoV-2 infection across Europe. Special attention will be paid to the recovery of activities of daily living (ADL) and to the GR services offered to these patients.

Design: A multi-center observational cohort study.

Setting and participants: This study will include several European countries (EuGMS member states) each providing at least 52 comparable routine datasets (core dataset) of persons recovering from a SARS-CoV-2 infection and receiving geriatric rehabilitation. The routine data will be anonymously collected in an online CASTOR database. The ethical regulations of each participating country will be followed.

Primary outcome: ADL functioning. **Secondary outcomes:** Length of stay, discharge destination, hospital readmission and mortality. Other variables that will be collected are quality of life, treatment modalities, complications, cognition, frailty, mood/anxiety, BMI, nutrition and pain. All variables will be reported at admission and compared with follow-up scores (discharge, 6 weeks and 6 months follow-up).

Conclusion: This study will explore the effect of geriatric rehabilitation on post-COVID-19 patients, especially on ADL recovery, and the variety of geriatric rehabilitation services across Europe. Information from this study may help improve recovery of older persons infected with SARS-CoV-2 and improve geriatric rehabilitation services in the ongoing COVID-19 pandemic.

Database: CINAHL

30. The central role of amygdala in stress-related cardiac diseases and an update on long-COVID

Author(s): Crea F.

Source: European Heart Journal; May 2021; vol. 42 (no. 19); p. 1813-1817

Publication Date: May 2021



Publication Type(s): Article

PubMedID: 33990122

Available at [European heart journal](#) - from Unpaywall

Database: EMBASE

31. Living with long Covid: some reflections 14 months down the line

Author(s): Twycross A.

Source: Evidence-based nursing; May 2021

Publication Date: May 2021

Publication Type(s): Editorial

PubMedID: 34039662

Available at [Evidence-based nursing](#) - from BMJ Journals

Available at [Evidence-based nursing](#) - from Unpaywall

Database: EMBASE

32. Therapeutic respiratory and functional rehabilitation protocol for intensive care unit patients affected by COVID-19: a structured summary of a study protocol for a randomised controlled trial.

Author(s): Carvalho, Ana Cristina; Moreira, Jorge; Cubelo, Pedro; Cantista, Pedro; Branco, Catarina Aguiar; Guimarães, Bruno

Source: Trials; Apr 2021; vol. 22 (no. 1); p. 268

Publication Date: Apr 2021

Publication Type(s): Letter Clinical Trial Protocol

PubMedID: 33845878

Available at [Trials](#) - from BioMed Central

Available at [Trials](#) - from Europe PubMed Central - Open Access

Available at [Trials](#) - from EBSCO (MEDLINE Complete)

Available at [Trials](#) - from Unpaywall

Abstract:

OBJECTIVES: The primary objective of the presented study is to analyze the respiratory and functional effects of a rehabilitation program in patients affected by hospitalization in Intensive Care Unit (ICU) due to COVID-19, in comparison with the group treated with standard of care, at discharge endpoint. The secondary objectives of the presented study are to evaluate different outcomes of the rehabilitation program in comparison to standard of care regarding: functional performance at 4-week and 12-week post-discharge mark; health-related quality of life, the impact on the health services (namely days of hospitalization), the cost-effectiveness of the intervention proposed.

TRIAL DESIGN: This is a randomized, controlled, double-blind, double-arm clinical trial of treatment, with an allocation ratio 1:1 and framework of superiority.

PARTICIPANTS: The study will be conducted at Centro Hospitalar Entre Douro e Vouga, Santa Maria da Feira, Portugal. Potential participants will be adult patients (≥ 18 years old) hospitalized in ICU with respiratory insufficiency due to COVID-19, who are referred to respiratory and functional rehabilitation. Only patients approved by physical rehabilitation doctors to perform respiratory and functional rehabilitation will be considered potential participants. To be eligible for inclusion participants must have been independent in their activities of daily living before the onset of critical illness (verbal statement by their proxy) and have to meet the safety criteria defined by the Portuguese Society of Physical Rehabilitation Medicine.



INTERVENTION AND COMPARATOR: Both groups will receive usual medical and nursing care in the ICU, which involves assessment and treatment of the respiratory system and may include positioning, hyperinflation techniques and suctioning. The physical function of the patient is assessed, and active bed exercises and mobility are encouraged as soon as possible and may include sitting out of bed. The intervention group will receive a functional and respiratory multidisciplinary rehabilitation protocol (that includes medical, nursing, physiotherapy and occupational therapy interventions) during their entire hospital stay. After reassurance that the patients fulfil the safety criteria, they will initiate the rehabilitation protocol, individualized to each patient based on the clinical status. The rehabilitation interventions and exercises implemented will be consistent with recommendations from the Portuguese Society of Physical Rehabilitation Medicine. The intervention will occur 6 days per week (Monday to Saturday), fifteen minutes, twice per day for each participant. Throughout all activities, progression will be increased successively, depending on the individual's tolerance and stability. After discharge, the intervention group will continue with rehabilitation exercises, prescribed by physical rehabilitation doctors. These exercises are designed for the patient to do at home, and then report their execution to rehabilitation nurses through teleconsultation, until 12 weeks after ICU discharge.

MAIN OUTCOMES: Baseline descriptive data collection will include age, sex, comorbidities and date of admission to ICU. The need of mechanical ventilation and length of use, as well as the need for oxygen therapy, length of ICU stay (days/hours), incidence of ICU readmission, discharge destination and survival will also be recorded. Prior to intervention, every two days and at discharge, participants will be evaluated using the following scales: Glasgow Coma Scale, Richmond Agitation Sedation Scale, Chelsea Critical Care Physical Assessment, 5 standardized questions for cooperation, Medical Research Council Sum-Score, Handgrip strength test and Medical Research Council dyspnea scale. At discharge, Borg Rating of Perceived Exertion will be evaluated. The primary outcome measure will be functional capacity using the 6-Minute Walk Test, and it will be measured at discharge and at the 4-week and 12-week mark. Medical Research Council Sum-Score, Handgrip strength test, Medical Research Council dyspnea scale and Borg Rating of Perceived Exertion will also be re-evaluated at the 4-week and 12-week mark. The health related quality of life will also be used as an outcome measure, using the 12-Item Short Form Survey, at 12 weeks of follow-up.

RANDOMISATION: Participants will be divided into two groups, standard care and intervention, by means of balanced randomization at a 1:1 ratio using blocks of 10 participants. The randomization sequence is going to be created using a free software (<http://www.randomized.org/>). In order to ensure the confidentiality of the randomisation sequence, this process will be conducted by an assessor external to the study.

BLINDING (MASKING): The evaluators in the study will be blinded during the entire process. The evaluators will be unaware of the study objectives and the randomized distribution of patients to study groups and will not have access to the randomization sequence. Although blinding for patients will not be possible to achieve completely, subjects will be unaware of other treatment modalities, and they will not know if they belong to the intervention or standard group. As for the treating physiotherapists and ICU staff, blinding will not be possible to achieve, but they will not be responsible for assessing outcomes.

NUMBERS TO BE RANDOMISED (SAMPLE SIZE): We plan to randomise 40 participants to each group. 80 participants in total.

TRIAL STATUS: This is the second and definitive protocol version, dated from 26th February 2021. Recruitment started on 8th March 2021. Participants will be recruited between March 8, 2021, and June 8, 2021. Study completion is expected to be October 2021.

TRIAL REGISTRATION: ReBEC RBR-7rvhpq9 . Registry name: The effect of rehabilitation in hospitalized COVID-19 patients. Registered on 17 March 2021. Retrospectively registered.

FULL PROTOCOL: "The full protocol is attached as an additional file, accessible from the Trials website (Additional file 1). In the interest in expediting dissemination of this material, the familiar formatting has been eliminated; this Letter serves as a summary of the key elements of the full protocol".

Database: Medline

33. Four-Month Clinical Status of a Cohort of Patients After Hospitalization for COVID-19.



Author(s): Writing Committee for the COMEBAC Study Group; Morin, Luc; Savale, Laurent; Pham, Tàì; Colle, Romain; Figueiredo, Samy; Harrois, Anatole; Gasnier, Matthieu; Lecoq, Anne-Lise; Meyrignac, Olivier; Noel, Nicolas; Baudry, Elodie; Bellin, Marie-France; Beurnier, Antoine; Choucha, Walid; Corruble, Emmanuelle; Dortet, Laurent; Hardy-Leger, Isabelle; Radiguer, François; Sportouch, Sabine; Verny, Christiane; Wyplosz, Benjamin; Zaidan, Mohamad; Becquemont, Laurent; Montani, David; Monnet, Xavier

Source: JAMA; Apr 2021; vol. 325 (no. 15); p. 1525-1534

Publication Date: Apr 2021

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 33729425

Available at [JAMA](#) - from EBSCO (MEDLINE Complete)

Available at [JAMA](#) - from Unpaywall

Abstract:

Importance: Little is known about long-term sequelae of COVID-19. **Objective:** To describe the consequences at 4 months in patients hospitalized for COVID-19.

Design, Setting, and Participants: In a prospective uncontrolled cohort study, survivors of COVID-19 who had been hospitalized in a university hospital in France between March 1 and May 29, 2020, underwent a telephone assessment 4 months after discharge, between July 15 and September 18, 2020. Patients with relevant symptoms and all patients hospitalized in an intensive care unit (ICU) were invited for further assessment at an ambulatory care visit.

Exposures: Survival of hospitalization for COVID-19.

Main Outcomes and Measures: Respiratory, cognitive, and functional symptoms were assessed by telephone with the Q3PC cognitive screening questionnaire and a checklist of symptoms. At the ambulatory care visit, patients underwent pulmonary function tests, lung computed tomographic scan, psychometric and cognitive tests (including the 36-Item Short-Form Health Survey and 20-item Multidimensional Fatigue Inventory), and, for patients who had been hospitalized in the ICU or reported ongoing symptoms, echocardiography.

Results: Among 834 eligible patients, 478 were evaluated by telephone (mean age, 61 years [SD, 16 years]; 201 men, 277 women). During the telephone interview, 244 patients (51%) declared at least 1 symptom that did not exist before COVID-19: fatigue in 31%, cognitive symptoms in 21%, and new-onset dyspnea in 16%. There was further evaluation in 177 patients (37%), including 97 of 142 former ICU patients. The median 20-item Multidimensional Fatigue Inventory score (n = 130) was 4.5 (interquartile range, 3.0-5.0) for reduced motivation and 3.7 (interquartile range, 3.0-4.5) for mental fatigue (possible range, 1 [best] to 5 [worst]). The median 36-Item Short-Form Health Survey score (n = 145) was 25 (interquartile range, 25.0-75.0) for the subscale "role limited owing to physical problems" (possible range, 0 [best] to 100 [worst]). Computed tomographic lung-scan abnormalities were found in 108 of 171 patients (63%), mainly subtle ground-glass opacities. Fibrotic lesions were observed in 33 of 171 patients (19%), involving less than 25% of parenchyma in all but 1 patient. Fibrotic lesions were observed in 19 of 49 survivors (39%) with acute respiratory distress syndrome. Among 94 former ICU patients, anxiety, depression, and posttraumatic symptoms were observed in 23%, 18%, and 7%, respectively. The left ventricular ejection fraction was less than 50% in 8 of 83 ICU patients (10%). New-onset chronic kidney disease was observed in 2 ICU patients. Serology was positive in 172 of 177 outpatients (97%).

Conclusions and Relevance: Four months after hospitalization for COVID-19, a cohort of patients frequently reported symptoms not previously present, and lung-scan abnormalities were common among those who were tested. These findings are limited by the absence of a control group and of pre-COVID assessments in this cohort. Further research is needed to understand longer-term outcomes and whether these findings reflect associations with the disease.

Database: Medline

34. Covid-19: One in three has neurological or psychiatric condition diagnosed after covid infection, study finds.

Author(s): Mahase, Elisabeth

Source: BMJ (Clinical research ed.); Apr 2021; vol. 373 ; p. n908



Publication Date: Apr 2021

Publication Type(s): Journal Article

PubMedID: 33827790

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

35. Fresh evidence of the scale and scope of long covid.

Author(s): Sivan, Manoj; Rayner, Clare; Delaney, Brendan

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

Publication Date: Apr 2021

Publication Type(s): Editorial Comment

PubMedID: 33795224

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

36. A Multidisciplinary NHS COVID-19 Service to Manage Post-COVID-19 Syndrome in the Community.

Author(s): Parkin ; Davison, Jennifer; Tarrant, Rachel; Ross, Denise; Halpin, Stephen; Simms, Alex; Salman, Rashad; Sivan, Manoj

Source: Journal of Primary Care & Community Health; Apr 2021 ; p. 1-9

Publication Date: Apr 2021

Publication Type(s): Academic Journal

Available at [Journal of primary care & community health](#) - from Unpaywall

Abstract: The National Institute for Health and Care Excellence (NICE) describe " post COVID-19 syndrome " or "Long COVID" as a set of persistent physical, cognitive and/or psychological symptoms that continue for more than 12 weeks after illness and which are not explained by an alternative diagnosis. These symptoms are experienced not only by patients discharged from hospital but also those in the community who did not require inpatient care. To support the recovery of this group of people, a unique integrated rehabilitation pathway was developed following extensive service evaluations by Leeds Primary Care Services, Leeds Community Healthcare NHS Trust and Leeds Teaching Hospital NHS Trust. The pathway aligns itself to the NHS England "Five-point plan" to embed post-COVID-19 syndrome assessment clinics across England, supporting the comprehensive medical assessment and rehabilitation intervention for patients in the community. The pathway was first of its kind to be set up in the UK and comprises of a three-tier service model (level 1: specialist MDT service, level 2: community therapy teams and level 3: self-management). The MDT service brings together various disciplines with specialist skill sets to provide targeted individualized interventions using a specific core set of outcome measures including C19-YRS (Yorkshire Rehabilitation Scale). Community and primary care teams worldwide need such an integrated multidisciplinary comprehensive model of care to deal with the growing number of cases of post-COVID-19 syndrome effectively and in a timely manner.

Database: CINAHL

37. Mortality and Readmission Rates Among Patients With COVID-19 After Discharge From Acute Care Setting With Supplemental Oxygen.



Author(s): Banerjee ; Canamar, Catherine P.; Voyageur, Christian; Tangpraphaphorn, Soodtida; Lemus, Anabel; Coffey, Charles; Wald-Dickler, Noah; Holtom, Paul; Shoenberger, Jan; Bowdish, Michael; Yee, Hal F.; Spellberg, Brad

Source: JAMA Network Open; Apr 2021; vol. 4 (no. 4)

Publication Date: Apr 2021

Publication Type(s): Academic Journal

Available at [JAMA network open](#) - from Unpaywall

Abstract:

Key Points: Question: What are the mortality and readmission rates in patients with COVID-19 pneumonia discharged according to an expected practice approach with supplemental home oxygen?

Findings: In this cohort study of 621 patients with COVID-19 discharged with supplemental home oxygen from emergency department and inpatient encounters at 2 large urban medical centers, the all-cause mortality rate was 1.3% and the all-cause 30-day return hospital admission rate was 8.5%. No patients died in the ambulatory setting or in transit when returning to acute care setting.

Meaning: In this study, a careful and systematic expected practice approach to treatment of patients with COVID-19 using home oxygen was associated with low all-cause mortality and low 30-day return admission rates. **Importance:** To optimize patient outcomes and preserve critical acute care access during the COVID-19 pandemic, the Los Angeles County Department of Health Services developed the SAFE @ HOME O2 Expected Practice (expected practice), enabling ambulatory oxygen management for COVID-19.

Objective: To assess outcomes of patients with COVID-19 pneumonia discharged via the expected practice approach to home or quarantine housing with supplemental home oxygen.

Design, Setting, and Participants: This retrospective cohort study included 621 adult patients with COVID-19 pneumonia who were discharged from 2 large urban public hospitals caring primarily for patients receiving Medicaid from March 20 to August 19, 2020. Patients were included in the analysis cohort if they received emergency or inpatient care for COVID-19 and were discharged with home oxygen. **Interventions:** Patients receiving at least 3 L per minute of oxygen, stable without other indication for inpatient care, were discharged from either emergency or inpatient encounters with home oxygen equipment, educational resources, and nursing telephone follow-up within 12 to 18 hours of discharge. Nurses provided continued telephone follow up as indicated, always with physician back-up.

Main Outcomes and Measures: All-cause mortality and all-cause 30-day return admission.

Results: A total of 621 patients with COVID-19 pneumonia (404 male [65.1%] and 217 female [34.9%]) were discharged with home oxygen. Median age of these patients was 51 years (interquartile range, 45-61 years), with 149 (24.0%) discharged from the emergency department and 472 (76%) discharged from inpatient encounters. The all-cause mortality rate was 1.3% (95% CI, 0.6%-2.5%) and the 30-day return hospital admission rate was 8.5% (95% CI, 6.2%-10.7%) with a median follow-up time of 26 days (interquartile range, 15-55 days). No deaths occurred in the ambulatory setting.

Conclusions and Relevance: In this cohort study, patients with COVID-19 pneumonia discharged on home oxygen had low rates of mortality and return admission within 30 days of discharge. Ambulatory management of COVID-19 with home oxygen has an acceptable safety profile, and the expected practice approach may help optimize outcomes, by ensuring right care in the right place at the right time and preserving access to acute care during the COVID-19 pandemic. This cohort study assesses mortality and readmission rates of adult patients with COVID-19 pneumonia discharged from 2 centers in Los Angeles County, California, via an expected practice approach to home or quarantine housing with supplemental home oxygen.

Database: CINAHL

38. Patients recovering from COVID-19 pneumonia in sub-acute care exhibit severe frailty: Role of the nurse assessment.

Author(s): Mandora ; Comini, Laura; Olivares, Adriana; Fracassi, Michela; Cadei, Maria Grazia; Paneroni, Mara; Marchina, Lucia; Suruniuc, Adrian; Luisa, Alberto; Scalvini, Simonetta; Corica, Giacomo; Vitacca, Michele



Source: Journal of Clinical Nursing (John Wiley & Sons, Inc.); Apr 2021; vol. 30 (no. 7/8); p. 952-960

Publication Date: Apr 2021

Publication Type(s): Academic Journal

Available at [Journal of Clinical Nursing](#) - from Wiley Online Library

Available at [Journal of Clinical Nursing](#) - from Unpaywall

Abstract:

Aims and Objectives: To document the level of frailty in sub-acute COVID-19 patients recovering from acute respiratory failure and investigate the associations between frailty, assessed by the nurse using the Blaylock Risk Assessment Screening Score (BRASS), and clinical and functional patient characteristics during hospitalisation.

Background: Frailty is a major problem in patients discharged from acute care, but no data are available on the frailty risk in survivors of COVID-19 infection. **Design:** A descriptive cross-sectional study (STROBE checklist).

Methods: At admission to sub-acute care in 2020, 236 COVID-19 patients (median age 77 years – interquartile range 68–83) were administered BRASS and classified into 3 levels of frailty risk. The Short Physical Performance Battery (SPPB) was also administered to measure physical function and disability. Differences between BRASS levels and associations between BRASS index and clinical parameters were analysed.

Results: The median BRASS index was 14.0 (interquartile range 9.0–20.0) denoting intermediate frailty (32.2%, 41.1%, 26.7% of patients exhibited low, intermediate and high frailty, respectively). Significant differences emerged between the BRASS frailty classes regards to sex, comorbidities, history of cognitive deficits, previous mechanical ventilation support and SPPB score. Patients with no comorbidities (14%) exhibited low frailty (BRASS: median 5.5, interquartile range 3.0–12.0). Age ≥ 65 years, presence of comorbidities, cognitive deficit and SPPB % predicted $< 50\%$ were significant predictors of high frailty.

Conclusions: Most COVID-19 survivors exhibit substantial frailty and require continuing care after discharge from acute care. **Relevance to clinical practice:** The BRASS index is a valuable tool for nurses to identify those patients most at risk of frailty, who require a programme of rehabilitation and community reintegration.

Database: CINAHL

39. ASSESSMENT OF REHABILITATION NEEDS IN PATIENTS DURING AND AFTER COVID-19: DEVELOPMENT OF THE COVID-19-REHABILITATION NEEDS SURVEY.

Author(s): LEMHÖFER ; GUTENBRUNNER, Christoph; Best, Norman; LOUDOVICI-KRUG, Dana; SCHILLER, Jörg; BÖKEL, Andrea; STURM, Christian

Source: Journal of Rehabilitation Medicine (Stiftelsen Rehabiliteringsinformation); Apr 2021; vol. 53 (no. 4); p. 1-6

Publication Date: Apr 2021

Publication Type(s): Academic Journal

Available at [Journal of rehabilitation medicine](#) - from IngentaConnect - Open Access

Available at [Journal of rehabilitation medicine](#) - from EBSCO (MEDLINE Complete)

Abstract:

Objective: COVID-19 can result in a broad spectrum of dysfunctions, some of which may persist for long periods, requiring long-term rehabilitation. A comprehensive screening tool is therefore necessary to identify these needs. To date, no data exist on satisfaction with medical and therapeutic interventions for COVID-19 in terms of quality and quantity. The aim of this study is to develop a survey for use with COVID-19 patients during and after the end of the acute phase of the disease.

Methods: Following the definition of dimensions by a group of experts, and a literature search, proven survey instruments were searched for suitable items. In addition, specific questions were developed based on symptoms, and answer options were created with regard to to the complexity of the questions.



Results: The COVID-19 Rehabilitation Needs Survey (C19-RehabNeS) consists of the established 36- item Short Form Survey (SF-36) together with the newly developed COVID-19-Rehabilitation Needs Questionnaire (C19-RehabNeQ) (11 further dimensions, respectively 57 items).

Conclusion: C19-RehabNeS is a comprehensive survey to assess functional limitations and rehabilitation needs during and after infection with SARSCoV-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-19).

Database: CINAHL

40. Acute necrotizing glomerulonephritis associated with COVID-19 infection: report of two pediatric cases.

Author(s): Basiratnia ; Derakhshan, Dorna; Yeganeh, Babak Shirazi; Derakhshan, Ali

Source: Pediatric Nephrology; Apr 2021; vol. 36 (no. 4); p. 1019-1023

Publication Date: Apr 2021

Publication Type(s): Academic Journal

Available at [Pediatric nephrology \(Berlin, Germany\)](#) - from Unpaywall

Abstract:

Background: Coronavirus disease 2019 (COVID-19) is thought to cause kidney injury via a variety of mechanisms. The most common reported kidney injury following COVID-19 infection is acute tubular injury (ATI); however, the procoagulant state induced by the virus may also damage the kidneys.

Case-diagnosis/treatment: Herein, we report two cases of acute necrotizing glomerulonephritis (GN) with fibrinoid necrosis in the context of COVID-19 infection. The one with more chronic features in the kidney biopsy progressed to permanent kidney failure but the second one had an excellent response to glucocorticoid pulse therapy with subsequent normal kidney function at 2-month follow-up.

Conclusions: Both reported cases had an acute presentation of kidney injury with positive nasopharyngeal PCR test for COVID-19. Based on the data review by the researchers, this is the first report of acute necrotizing GN associated with COVID-19 infection.

Database: CINAHL

41. Post-acute COVID-19 syndrome

Author(s): Nalbandian A.; Gupta A.; Madhavan M.V.; Rosner G.F.; Uriel N.; Schwartz A.; Wan E.Y.; Sehgal K.; Choueiri T.K.; Bikdeli B.; Connors J.M.; McGroder C.; Baldwin M.; Brodie D.; Garcia C.K.; Stevens J.S.; Mohan S.; Landry D.W.; Cook J.R.; Ausiello J.C.; Accili D.; Bilezikian J.P.; Nordvig A.S.; Elkind M.S.V.; Shalev D.; Sehrawat T.S.; Ahluwalia N.; Dietz D.; Der-Nigoghossian C.; Liyanage-Don N.; Bernstein E.J.; Beckley A.A.; Seres D.S.; Freedberg D.E.

Source: Nature Medicine; Apr 2021; vol. 27 (no. 4); p. 601-615

Publication Date: Apr 2021

Publication Type(s): Review

PubMedID: 33753937

Available at [Nature medicine](#) - from Unpaywall

Abstract: Severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) is the pathogen responsible for the coronavirus disease 2019 (COVID-19) pandemic, which has resulted in global healthcare crises and strained health resources. As the population of patients recovering from COVID-19 grows, it is paramount to establish an understanding of the healthcare issues surrounding them. COVID-19 is now recognized as a multi-organ disease with a broad spectrum of manifestations. Similarly to post-acute viral syndromes described in survivors of other virulent coronavirus epidemics, there are increasing reports of persistent and prolonged effects after acute COVID-19.

Patient advocacy groups, many members of which identify themselves as long haulers, have helped contribute to the



recognition of post-acute COVID-19, a syndrome characterized by persistent symptoms and/or delayed or long-term complications beyond 4 weeks from the onset of symptoms. 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. Copyright © 2021, The Author(s), under exclusive licence to Springer Nature America, Inc.

Database: EMBASE

42. Post-covid syndrome in individuals admitted to hospital with covid-19: retrospective cohort study.

Author(s): Ayoubkhani, Daniel; Khunti, Kamlesh; Nafilyan, Vahé; Maddox, Thomas; Humberstone, Ben; Diamond, Ian; Banerjee, Amitava

Source: BMJ (Clinical research ed.); Mar 2021; vol. 372 ; p. n693

Publication Date: Mar 2021

Publication Type(s): Journal Article Observational Study

PubMedID: 33789877

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Abstract:

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.

Database: Medline

43. Covid-19: Middle aged women face greater risk of debilitating long term symptoms.

Author(s): Torjesen, Ingrid



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

Publication Date: Mar 2021

Publication Type(s): Journal Article

PubMedID: 33766927

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

44. Children and the return to school: how much should we worry about covid-19 and long covid?

Author(s): Altmann, Daniel M

Source: BMJ (Clinical research ed.); Mar 2021; vol. 372 ; p. n701

Publication Date: Mar 2021

Publication Type(s): Journal Article

PubMedID: 33722798

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

45. Long-haul COVID: heed the lessons from other infection-triggered illnesses.

Author(s): Aucott, John N; Rebman, Alison W

Source: Lancet (London, England); Mar 2021

Publication Date: Mar 2021

Publication Type(s): Letter

PubMedID: 33684352

Available at [Lancet \(London, England\)](#) - from ProQuest (MEDLINE with Full Text) - NHS Version

Available at [Lancet \(London, England\)](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Lancet \(London, England\)](#) - from Unpaywall

Database: Medline

46. Multiorgan impairment in low-risk individuals with post-COVID-19 syndrome: a prospective, community-based study.

Author(s): Dennis, Andrea; Wamil, Malgorzata; Alberts, Johann; Oben, Jude; Cuthbertson, Daniel J; Wootton, Dan; Crooks, Michael; Gabbay, Mark; Brady, Michael; Hishmeh, Lyth; Attree, Emily; Heightman, Melissa; Banerjee, Rajarshi; Banerjee, Amitava; COVERSCAN study investigators

Source: BMJ open; Mar 2021; vol. 11 (no. 3); p. e048391

Publication Date: Mar 2021

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article Observational Study

PubMedID: 33785495

Available at [BMJ open](#) - from BMJ Journals

Available at [BMJ open](#) - from Europe PubMed Central - Open Access

Available at [BMJ open](#) - from HighWire - Free Full Text



Available at [BMJ open](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMJ open](#) - from ProQuest (MEDLINE with Full Text) - NHS Version

Abstract:

OBJECTIVE: To assess medium-term organ impairment in symptomatic individuals following recovery from acute SARS-CoV-2 infection.

DESIGN: Baseline findings from a prospective, observational cohort study.

SETTING: Community-based individuals from two UK centres between 1 April and 14 September 2020.

PARTICIPANTS: Individuals ≥ 18 years with persistent symptoms following recovery from acute SARS-CoV-2 infection and age-matched healthy controls.

INTERVENTION: Assessment of symptoms by standardised questionnaires (EQ-5D-5L, Dyspnoea-12) and organ-specific metrics by biochemical assessment and quantitative MRI.

MAIN OUTCOME MEASURES: Severe post-COVID-19 syndrome defined as ongoing respiratory symptoms and/or moderate functional impairment in activities of daily living; single-organ and multiorgan impairment (heart, lungs, kidneys, liver, pancreas, spleen) by consensus definitions at baseline investigation.

RESULTS: 201 individuals (mean age 45, range 21-71 years, 71% female, 88% white, 32% healthcare workers) completed the baseline assessment (median of 141 days following SARS-CoV-2 infection, IQR 110-162). The study population was at low risk of COVID-19 mortality (obesity 20%, hypertension 7%, type 2 diabetes 2%, heart disease 5%), with only 19% hospitalised with COVID-19. 42% of individuals had 10 or more symptoms and 60% had severe post-COVID-19 syndrome. Fatigue (98%), muscle aches (87%), breathlessness (88%) and headaches (83%) were most frequently reported. Mild organ impairment was present in the heart (26%), lungs (11%), kidneys (4%), liver (28%), pancreas (40%) and spleen (4%), with single-organ and multiorgan impairment in 70% and 29%, respectively. Hospitalisation was associated with older age ($p=0.001$), non-white ethnicity ($p=0.016$), increased liver volume ($p<0.0001$), pancreatic inflammation ($p<0.01$), and fat accumulation in the liver ($p<0.05$) and pancreas ($p<0.01$). Severe post-COVID-19 syndrome was associated with radiological evidence of cardiac damage (myocarditis) ($p<0.05$).

CONCLUSIONS: 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.

TRIAL REGISTRATION NUMBER NCT04369807; Pre-results.

Database: Medline

47. Long COVID and the role of physical activity: a qualitative study.

Author(s): Humphreys, Helen; Kilby, Laura; Kudiersky, Nik; Copeland, Robert

Source: BMJ open; Mar 2021; vol. 11 (no. 3); p. e047632

Publication Date: Mar 2021

Publication Type(s): Journal Article

PubMedID: 33692189

Available at [BMJ open](#) - from BMJ Journals

Available at [BMJ open](#) - from Europe PubMed Central - Open Access

Available at [BMJ open](#) - from HighWire - Free Full Text

Available at [BMJ open](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMJ open](#) - from ProQuest (MEDLINE with Full Text) - NHS Version

Available at [BMJ open](#) - from Unpaywall

Abstract:

OBJECTIVES: To explore the lived experience of long COVID with particular focus on the role of physical activity.

DESIGN: Qualitative study using semistructured interviews.



PARTICIPANTS: 18 people living with long COVID (9 men, 9 women; aged between 18-74 years; 10 white British, 3 white Other, 3 Asian, 1 black, 1 mixed ethnicity) recruited via a UK-based research interest database for people with long COVID.

SETTING: Telephone interviews with 17 participants living in the UK and 1 participant living in the USA.

RESULTS: Four themes were generated. Theme 1 describes how participants struggled with drastically reduced physical function, compounded by the cognitive and psychological effects of long COVID. Theme 2 highlights challenges associated with finding and interpreting advice about physical activity that was appropriately tailored. Theme 3 describes individual approaches to managing symptoms including fatigue and 'brain fog' while trying to resume and maintain activities of daily living and other forms of exercise. Theme 4 illustrates the battle with self-concept to accept reduced function (even temporarily) and the fear of permanent reduction in physical and cognitive ability.

CONCLUSIONS: This study provides insight into the challenges of managing physical activity alongside the extended symptoms associated with long COVID. Findings highlight the need for greater clarity and tailoring of physical activity-related advice for people with long COVID and improved support to resume activities important to individual well-being.

Database: Medline

48. In This for the Long Haul: Ethics, COVID-19, and Rehabilitation.

Author(s): Verduzco-Gutierrez ; Rydberg, Leslie; Sullivan, Melba Nicholson; Mukherjee, Debjani

Source: PM & R: Journal of Injury, Function & Rehabilitation; Mar 2021; vol. 13 (no. 3); p. 325-332

Publication Date: Mar 2021

Publication Type(s): Academic Journal

Available at [PM&R](#) - from Unpaywall

Database: CINAHL

49. Vaccinating children to prevent long covid? More caution is needed in interpreting current epidemiological data.

Author(s): Bhopal, Sunil S; Absoud, Michael

Source: BMJ (Clinical research ed.); Feb 2021; vol. 372 ; p. n520

Publication Date: Feb 2021

Publication Type(s): Letter

PubMedID: 33627337

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

50. Covid-19: Recognise long covid as occupational disease and compensate frontline workers, say MPs.

Author(s): Limb, Matthew

Source: BMJ (Clinical research ed.); Feb 2021; vol. 372 ; p. n503

Publication Date: Feb 2021

Publication Type(s): Journal Article

PubMedID: 33608317

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals



Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

51. Long covid: WHO calls on countries to offer patients more rehabilitation.

Author(s): Wise, Jacqui

Source: BMJ (Clinical research ed.); Feb 2021; vol. 372 ; p. n405

Publication Date: Feb 2021

Publication Type(s): Journal Article

PubMedID: 33568362

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

52. Long COVID guidelines need to reflect lived experience.

Author(s): Gorna, Robin; MacDermott, Nathalie; Rayner, Clare; O'Hara, Margaret; Evans, Sophie; Agyen, Lisa; Nutland, Will; Rogers, Natalie; Hastie, Claire

Source: Lancet (London, England); Feb 2021; vol. 397 (no. 10273); p. 455-457

Publication Date: Feb 2021

Publication Type(s): Research Support, Non-u.s. Gov't Journal Article

PubMedID: 33357467

Available at [Lancet \(London, England\)](#) - from ProQuest (MEDLINE with Full Text) - NHS Version

Available at [Lancet \(London, England\)](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [Lancet \(London, England\)](#) - from Unpaywall

Database: Medline

53. Decoding the unknowns in long covid.

Author(s): Altmann, Daniel M; Boyton, Rosemary J

Source: BMJ (Clinical research ed.); Feb 2021; vol. 372 ; p. n132

Publication Date: Feb 2021

Publication Type(s): Journal Article

PubMedID: 33541867

Available at [BMJ \(Clinical research ed.\)](#) - from BMJ Journals

Available at [BMJ \(Clinical research ed.\)](#) - from Unpaywall

Database: Medline

54. Distorted chemosensory perception and female sex associate with persistent smell and/or taste loss in people with SARS-CoV-2 antibodies: a community based cohort study investigating clinical course and resolution of acute smell and/or taste loss in people with and without SARS-CoV-2 antibodies in London, UK.

Author(s): Makaronidis ; Firman, Chloe; Magee, Cormac G.; Mok, Jessica; Balogun, Nyaladzi; Lechner, Matt; Carnemolla, Alisia; Batterham, Rachel L.

Source: BMC Infectious Diseases; Feb 2021; vol. 21 (no. 1); p. 1-11



Publication Date: Feb 2021

Publication Type(s): Academic Journal

PubMedID: NLM33632171

Available at [BMC infectious diseases](#) - from BioMed Central

Available at [BMC infectious diseases](#) - from Europe PubMed Central - Open Access

Available at [BMC infectious diseases](#) - from ProQuest (Health Research Premium) - NHS Version

Available at [BMC infectious diseases](#) - from ProQuest (MEDLINE with Full Text) - NHS Version

Available at [BMC infectious diseases](#) - from EBSCO (MEDLINE Complete)

Available at [BMC infectious diseases](#) - from Unpaywall

Abstract:

Background: Loss of smell and/or taste are cardinal symptoms of COVID-19. 'Long-COVID', persistence of symptoms, affects around one fifth of people. However, data regarding the clinical resolution of loss of smell and/or taste are lacking. In this study we assess smell and taste loss resolution at 4-6 week follow-up, aim to identify risk factors for persistent smell loss and describe smell loss as a feature of long-COVID in a community cohort in London with known SARS-CoV-2 IgG/IgM antibody status. We also compare subjective and objective smell assessments in a subset of participants.

Methods: Four hundred sixty-seven participants with acute loss of smell and/or taste who had undergone SARS-CoV-2 IgG/IgM antibody testing 4-6 weeks earlier completed a follow-up questionnaire about resolution of their symptoms. A subsample of 50 participants completed an objective olfactory test and results were compared to subjective smell evaluations.

Results: People with SARS-CoV-2 antibodies with an acute loss of sense of smell and taste were significantly less likely to recover their sense of smell/taste than people who were seronegative (smell recovery: 57.7% vs. 72.1%, $p = 0.027$. taste recovery 66.2% vs. 80.3%, $p = 0.017$). In SARS-CoV-2 positive participants, a higher percentage of male participants reported full resolution of smell loss (72.8% vs. 51.4%; $p < 0.05$) than those who reported full resolution. Participants who experienced parosmia reported lower smell recovery rates and participants with distorted taste perception lower taste recovery rates. Parosmia had a significant association to unresolved smell loss (OR 2.47, 95%CI 1.54-4.00, $p < 0.05$) and people with a distorted perception of their sense of smell/taste are likely to benefit from prioritised early therapeutic interventions.

Trials Registration: ClinicalTrials.gov NCT04377815 Date of registration: 23/04/2020.

Database: CINAHL

55. Persistent Brainstem Dysfunction in Long-COVID: A Hypothesis

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Source: ACS Chemical Neuroscience; Feb 2021; vol. 12 (no. 4); p. 573-580

Publication Date: Feb 2021

Publication Type(s): Review

PubMedID: 33538586

Available at [ACS chemical neuroscience](#) - from Unpaywall

Abstract: Long-COVID is a postviral illness that can affect survivors of COVID-19, regardless of initial disease severity or age. Symptoms of long-COVID include fatigue, dyspnea, gastrointestinal and cardiac problems, cognitive impairments, myalgia, and others. While the possible causes of long-COVID include long-term tissue damage, viral persistence, and chronic inflammation, the review proposes, perhaps for the first time, that persistent brainstem dysfunction may also be involved. This hypothesis can be split into two parts. The first is the brainstem tropism and damage in COVID-19. As the brainstem has a relatively high expression of ACE2 receptor compared with other brain regions, SARS-CoV-2 may exhibit tropism therein. Evidence also exists that neuropilin-1, a co-receptor of SARS-CoV-2, may be expressed in the brainstem. Indeed, autopsy studies have found SARS-CoV-2 RNA and proteins in the



brainstem. The brainstem is also highly prone to damage from pathological immune or vascular activation, which has also been observed in autopsy of COVID-19 cases. The second part concerns functions of the brainstem that overlap with symptoms of long-COVID. The brainstem contains numerous distinct nuclei and subparts that regulate the respiratory, cardiovascular, gastrointestinal, and neurological processes, which can be linked to long-COVID. As neurons do not readily regenerate, brainstem dysfunction may be long-lasting and, thus, is long-COVID. Indeed, brainstem dysfunction has been implicated in other similar disorders, such as chronic pain and migraine and myalgic encephalomyelitis or chronic fatigue syndrome. Copyright © 2021 American Chemical Society.

Database: EMBASE



#	Database	Search term	Results
1	Medline	(COVID OR COVID-19 OR COVID19 OR COVID2019).ti,ab	36197
2	Medline	exp CORONAVIRUS/	26411
3	Medline	(coronavirus OR "Corona virus").ti,ab	25607
4	Medline	(2019-nCoV).ti,ab	771
5	Medline	(SARS-CoV).ti,ab	12988
6	Medline	(Wuhan AND coronavirus).ti,ab	1833
7	Medline	((2019 AND novel) AND coronavirus).ti,ab	2654
8	Medline	(severe acute respiratory syndrome coronavirus 2).ti,ab	4868
9	Medline	(SARS-CoV-2 OR SARSCoV2).ti,ab	10656
10	Medline	(2019-nCoV).ti,ab	771
11	Medline	(1 OR 2 OR 3 OR 4 OR 5 OR 6 OR 7 OR 8 OR 9 OR 10)	104520
12	Medline	((medium OR long-term OR long-haul OR expanded OR extended OR recurr* OR sustain* OR persist* OR prolong* OR continu* OR debilitating) ADJ2 (effect* OR symptom* OR impact* OR outcome* OR recover* OR suffer* OR sequela*)).ti,ab	322082
13	Medline	("long haul*").ti,ab	858
14	Medline	("patient discharge").ti,ab	1488
15	Medline	("hospital discharge*").ti,ab	29690
16	Medline	("following hospital discharge").ti,ab	865
17	Medline	("post hospital discharge").ti,ab	322



18	Medline	("following patient discharge").ti,ab	16
19	Medline	("post patient discharge").ti,ab	1
20	Medline	("following discharge").ti,ab	2894
21	Medline	("post discharge").ti,ab	5583
22	Medline	("post acute").ti,ab	3243
23	Medline	((post OR following OR after) ADJ2 ("hospital discharge" OR "patient discharge" OR discharge OR recovery OR infection)).ti,ab	200739
24	Medline	(12 OR 13 OR 14 OR 15 OR 16 OR 17 OR 18 OR 19 OR 20 OR 21 OR 22 OR 23)	539395
25	Medline	(long-lasting).ti,ab	47830
26	Medline	(long-covid OR "Long Covid").ti,ab	51
27	Medline	(24 OR 25 OR 26)	601822
28	Medline	(11 AND 27)	6095
29	Medline	(Therap*).ti,ab	2818698
30	Medline	exp "COVID-19"/	83452
31	Medline	(11 OR 30)	158257
32	Medline	(27 AND 31)	6102
33	Medline	(29 AND 32)	895
34	Medline	exp REHABILITATION/	158122
35	Medline	(33 AND 34)	29
36	Medline	(rehab*).ti,ab	1599
37	Medline	(34 OR 36)	160880
38	Medline	(29 OR 37)	2951511



39	Medline	(Lancet OR JAMA OR "New England Journal of Medicine" OR NEJM OR BMJ).ti,ab	8397
40	Medline	(32 AND 39)	2
41	Medline	(11 AND 29 AND 39)	11
42	Medline	(Lancet OR JAMA OR "New England Journal of Medicine" OR NEJM OR BMJ).jn	296572
43	Medline	(32 AND 42)	60
44	Medline	(community).ti,ab	500652
45	Medline	(32 AND 44)	336
46	Medline	(32 AND 37)	108
47	Medline	(29 OR 34 OR 36 OR 44)	3402594
48	Medline	(Physiotherap* OR Physical therap*).ti,ab	109896
49	Medline	(Community-nurs* OR "Community nurs*").ti,ab	3682
50	Medline	(47 OR 48 OR 49)	3417010
51	Medline	(32 AND 50)	1266
52	CINAHL	(COVID OR COVID-19 OR COVID19 OR COVID2019).ti,ab	28437
53	CINAHL	exp CORONAVIRUS/	13760
54	CINAHL	(coronavirus OR "Corona virus").ti,ab	15114
55	CINAHL	(2019-nCoV).ti,ab	219
56	CINAHL	(SARS-CoV).ti,ab	308
57	CINAHL	(Wuhan AND coronavirus).ti,ab	819
58	CINAHL	((2019 AND novel) AND coronavirus).ti,ab	1052



59	CINAHL	(severe acute respiratory syndrome coronavirus 2).ti,ab	1910
60	CINAHL	(SARS-CoV-2 OR SARSCoV2).ti,ab	4407
61	CINAHL	(2019-nCoV).ti,ab	219
62	CINAHL	((medium OR long-term OR long-haul OR expanded OR extended OR recurr* OR sustain* OR persist* OR prolong* OR continu* OR debilitating) ADJ2 (effect* OR symptom* OR impact* OR outcome* OR recover* OR suffer* OR sequela*)).ti,ab	83439
63	CINAHL	("long haul*").ti,ab	364
64	CINAHL	("patient discharge").ti,ab	813
65	CINAHL	("hospital discharge*").ti,ab	13204
66	CINAHL	("following hospital discharge").ti,ab	470
67	CINAHL	("post hospital discharge").ti,ab	204
68	CINAHL	("following patient discharge").ti,ab	10
69	CINAHL	("post patient discharge").ti,ab	3
70	CINAHL	("following discharge").ti,ab	1473
71	CINAHL	("post discharge").ti,ab	3214
72	CINAHL	("post acute").ti,ab	2372
73	CINAHL	((post OR following OR after) ADJ2 ("hospital discharge" OR "patient discharge" OR discharge OR recovery OR infection)).ti,ab	40146
74	CINAHL	(52 OR 53 OR 54 OR 55 OR 56 OR 57 OR 58 OR 59 OR 60 OR 61)	50033
75	CINAHL	(62 OR 63 OR 64 OR 65 OR 66 OR 67 OR 68 OR 69 OR 70 OR 71 OR 72 OR 73)	137260



76	CINAHL	(74 AND 75)	1148
77	CINAHL	(Therap* OR rehab* OR nurs* OR physio*).ti,ab	1264810
78	CINAHL	(76 AND 77)	298
79	Medline	(UK OR Great Britain OR NHS OR England OR Wales OR Scotland OR Ireland).ti,ab	236148
80	Medline	(51 AND 79)	58

