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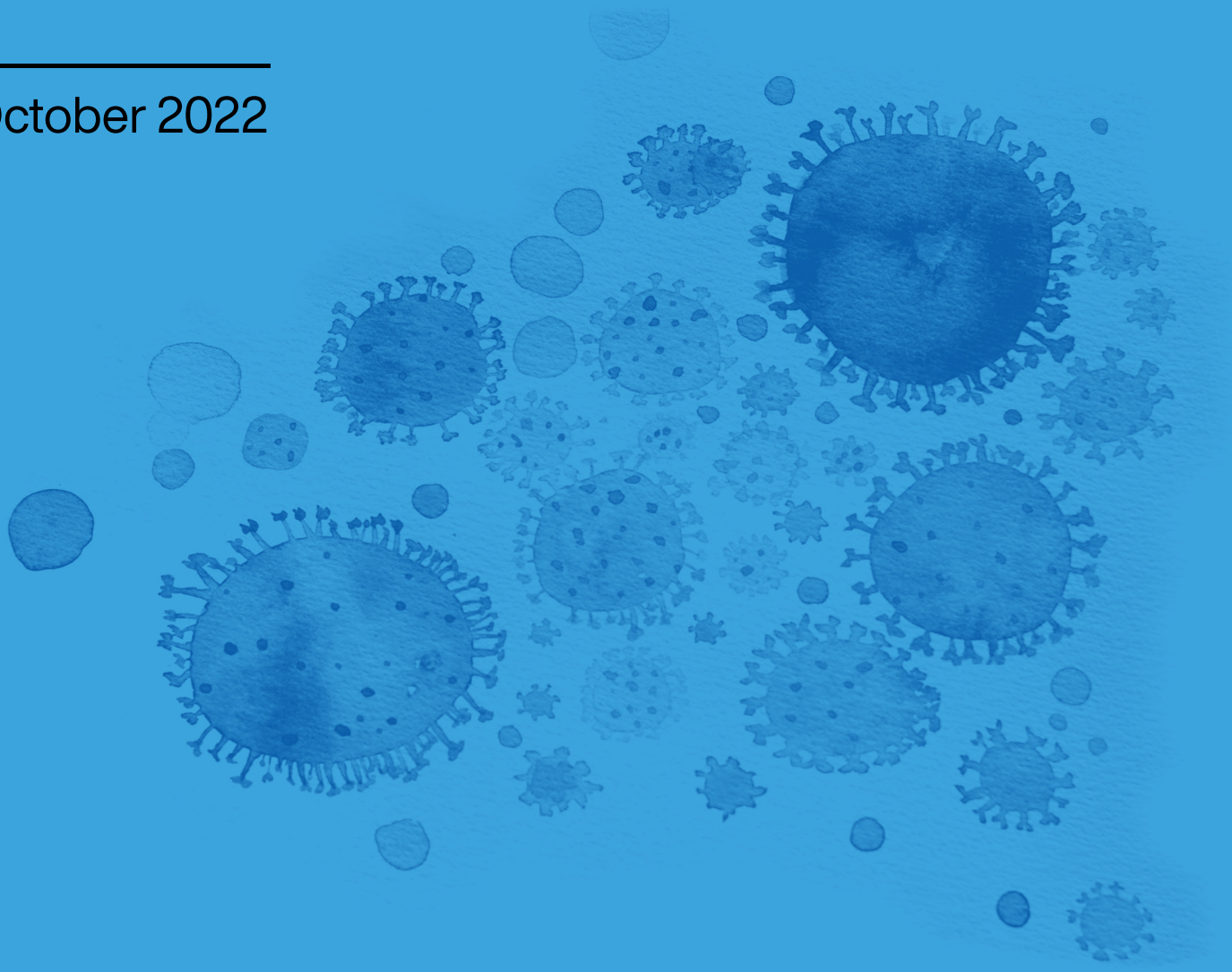
NIHR Policy Research Programme Reviews Facility

To support national policy development and implementation

Reviews on Long COVID

A scope of the literature: update

October 2022



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UCL Institute of Education

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London School of Hygiene & Tropical Medicine

University of York

Reviews on Long COVID: A scope of the literature. Update October 2022

Raine G, Khouja C, Harden M, Sutcliffe K, Sowden A

October 2022

Raine G, Khouja C, Harden M, Sutcliffe K, Sowden A (2022) Reviews on Long COVID: A scope of the literature. Update October 2022. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London.

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Summary

- For this update, we identified 29 published reviews; two completed reviews that are yet to be published; and 63 new protocols for ongoing reviews on Long COVID.
- Most published reviews were focused on the frequency or risk of persistent symptoms/effects, which has been a consistent finding in all our reports.
- We identified more published and ongoing reviews with a focus on treatment/rehabilitation compared to our last update.

Introduction

This is the third update in an ongoing series of quarterly evidence scans related to Long COVID requested by the Department of Health and Social Care. The last update covered the period April 2022 to June 2022.[1]

For the current update, we identified systematic reviews and review protocols focused on Long COVID that were published between the end of June and the start of October 2022. Long COVID was conceptualised broadly as any symptoms or effects that persist or develop after acute COVID-19 infection.

Identification of reviews

The database search strategy we used previously was reviewed and updated by an information specialist. Search terms for Long COVID were expanded through the addition of relevant subject headings and the use of proximity searching. MEDLINE (via Ovid) and CINAHL (via Ebsco) were searched on 3rd October 2022 with retrieval limited to systematic reviews.[2, 3] In addition, the Cochrane Database of Systematic Reviews (CDSR) and Epistemonikos were searched. A further key word search of PROSPERO was undertaken by the review team on 11th October to identify any ongoing reviews.

Searches were limited to studies added to the databases from 1st July 2022 onwards. No language restrictions were applied. Due to the rapid nature of the work, the database searches were designed to balance the need to retrieve as many relevant reviews as possible against the limited time available for screening.

The search strategies for MEDLINE, CINAHL, CDSR and Epistemonikos can be found in Appendix 1 (page 21).

To be included, reviews needed to have a primary focus on Long COVID (however conceptualised and defined) and be systematic in nature. A review was considered systematic if it reported some search terms and inclusion criteria and also reported the number of references retrieved and the number of studies included. Reviews could focus on adults and/or children and include primary studies of any design or other reviews (i.e. reviews of reviews). We did not apply criteria relating to

[1] Raine G, Khouja C, Khatwa M, Sutcliffe K, Sowden A (2022) Reviews on Long COVID: A scope of the literature. Update July 2022. London: EPPI Centre, UCL Social Research Institute, UCL Institute of Education, University College London.

[2] Navarro-Ruan T, Haynes RB. Preliminary comparison of the performance of the National Library of Medicine's systematic review publication type and the sensitive clinical queries filter for systematic reviews in PubMed. J Med Libr Assoc. 2022;110:43-46.

[3] Booth A. Chapter 3: Searching for Studies. In: Noyes J, Booth A, Hannes K, Harden A, Harris J, Lewin S, Lockwood C (editors), Supplementary Guidance for Inclusion of Qualitative Research in Cochrane Systematic Reviews of Interventions. Version 1 (updated August 2011). Cochrane Collaboration Qualitative Methods Group, 2011.

the length of time after acute infection owing to variation in how Long COVID has been defined in the literature. Reviews were only included if the full text was readily available, and we excluded pre-prints. Titles and abstracts were screened by one reviewer; two reviewers screened the full text of papers.

Key findings

We screened 943 records and identified **29 published reviews; two completed reviews that are yet to be published; and 63 new protocols for ongoing reviews**. The flow of studies through the review is shown in Appendix 2 (page 28). Table 1 provides a summary of all reviews identified for this update by focus. The full reference and aim/research questions for each included review are provided on pages 4-20.

Table 1: Summary of reviews (July to October 2022)

Review status Main focus	Systematic review	Review of reviews	Living review*	Evidence map
Published reviews (n=29)**				
Treatment/rehabilitation	4		1	
Treatment/prevention	2			
Prevention			1	
Health and social	1			
Symptoms/effects	16	1	1	1
Risk factors, prevalence & treatment	1			
Completed not published (n=2)				
Symptoms/effects	2			
Ongoing reviews (new protocols) (n=63)				
Treatment/rehabilitation	23		1	
Treatment/prevention	4			
Health and social	1			
Symptoms/effects	30			
Risk factors/pathobiology	4			

* Includes updates of living reviews; **three reviews were available online in late June.

The majority of published reviews were focused on the frequency or risk of persistent symptoms or effects (19/29), which has been a consistent finding in our reports to date. However, there were more reviews not focused on symptom/effects (10/29) than in our previous update in July (6/28). For the July report, we identified three published reviews that were focused on treatment/ rehabilitation. In comparison, seven reviews in the current update focused on treatment/ rehabilitation alone (n=5) or a combination of treatment/rehabilitation and prevention (n=2).

The reviews on symptoms or effects that we identified for the current update included a 'review of reviews' on the physical, psychological, social, and spiritual impacts for COVID survivors (#10 Paterson et al. 2022); a living review that examined major organ damage following hospitalisation for COVID (#11 Greer et al., 2022); and a map of evidence from observational studies on persistent symptoms in both children and adults (#28 Franco et al., 2021).

Out of the 10 published reviews not focused on symptoms/effects, we identified recent updates of two Cochrane living reviews related to the treatment (#1 O'byrne et al., 2022) and prevention (#8 Webster et al., 2022) of persisting olfactory dysfunction following COVID infection. Another review and meta-analysis also examined the evidence on treatment for persistent olfactory dysfunction (#2 Asvapoositkul et al., 2022).

In terms of other treatment focused reviews, one examined Long COVID healthcare pathways for adults (#5 Wolf et al., 2022); one provided an overview of currently registered clinical trials of Long COVID treatments (#3 Hawkes et al., 2022); and another examined the effectiveness of both pharmacological and non-pharmacological interventions for treating Long COVID-19 symptoms (#4 Veronese et al., 2022). Two reviews focused on COVID vaccination for treating and/or preventing Long COVID (#6 Mumtaz et al., 2022; #7 Notarte et al., 2022).

One published review examined the impact of persistent COVID symptoms or disability on individuals' return to employment (#9 Gualano et al., 2022). Another aimed to describe all the symptoms related to post COVID fatigue, but also identified risk factors, and possible treatments for the condition (#29 Joli et al., 2022). The two reviews identified from PROSPERO that were completed but not yet published both focused on Long COVID symptoms and effects (#1 Galvez Sánchez et al., 2022; #2 Lampsas et al., 2022).

The number of protocols for ongoing reviews identified (n=63) was similar to the total we found and reported in our July report (n=59), but more were focused on treatment/rehabilitation (24/63 compared to 12/59 in July). Of the treatment/rehabilitation focused reviews, five are on Chinese medicine or Chinese exercise (#4 Chen et al., 2022; #12 Kaijie and Jiaming, 2022; #16 Liu et al., 2022; #20 Qiang et al., 2022; #24 Zeng et al., 2022). Another five reviews are examining acupuncture as a treatment for various persisting symptoms (#3 Chao et al. 2022; #6 Dai and Lin, 2022; #8 Du et al. 2022; #14 Lam et al. 2022, #23 Xiao et al., 2022). There are also four ongoing reviews on COVID vaccination and Long COVID (#17 Luo and Tang, 2022; #25 Jennings et al. 2022; #26 Qi et al. 2022; #28 Watanabe et al. 2022).

In terms of rehabilitation, nine ongoing reviews, including one living review, are on the impact of physical activity or exercise/physical therapy programmes on persisting symptoms and effects (#1 #McKnight et al., 2022; #7 dos Santos Marinho et al., 2022; #9 Farah et al., 2022; #11 Ibrahim et al., 2022; #13 Kannan et al., 2022; #18 Martins et al., 2022; #19 Morgan et al., 2022; #21 Silveira Bianchim et al., 2022; #22 Utrera et al., 2022).

One review is examining the social and economic impacts of Long COVID and the effectiveness of policies/programs for mitigating them (#29 Xiang et al., 2022). Four reviews are focused on Long COVID risk factors/pathobiology.

1) Published Reviews

Treatment & rehabilitation (n=5)

Living review

1. O'Byrne et al. Interventions for the treatment of persistent post-COVID-19 olfactory dysfunction. Cochrane Database Syst Rev. 2022;9(9):CD013876. https://doi.org/10.1002/14651858.CD013876.pub3

Aim: To assess the effects (benefits and harms) of interventions to treat persisting olfactory dysfunction due to COVID-19 infection.

NB: This is an update of a 2021 review with one additional study added.

Standard systematic reviews

2. Asvapoositkul et al. Therapeutic options of post-COVID-19 related olfactory dysfunction: a systematic review and meta-analysis. Rhinology. 2022 https://doi.org/10.4193/Rhin22.221

Aim: To consolidate existing evidence for current therapies in patients with persistent olfactory dysfunction related to COVID-19 infection.

3. Hawke et al. Interventions for mental health, cognition, and psychological wellbeing in Long COVID: a systematic review of registered trials. Psychol Med. 2022;1-15. https://doi.org/10.1017/S0033291722002203

Aim: To synthesise currently registered trials examining interventions for mental health, cognition, and psychological wellbeing in patients with Long COVID.

4. Veronese et al. Interventions for improving Long COVID-19 symptomatology: A systematic review. Viruses. 2022;14(9):1863. https://doi.org/10.3390/v14091863

Aim: To understand which therapies have proved effective against the symptoms of Long COVID-19.

5. Wolf et al. Possible Long COVID healthcare pathways: a scoping review. BMC Health Serv Res. 2022;22(1):1076. https://doi.org/10.1186/s12913-022-08384-6

Aim: To give an overview of recommendations about possible Long COVID healthcare pathways and requirements regarding decision-making and communication for healthcare professionals.

Treatment/prevention (n=2)

6. Mumtaz et al. COVID-19 vaccine and Long COVID: A scoping review. Life. 2022;12(7):1066. https://doi.org/10.3390/life12071066

Aim: To study the impact of vaccination on patients with pre-existing signs and symptoms of Long COVID and decipher the impact of vaccinations before developing COVID-19 infection.

7. Notarte et al. Impact of COVID-19 vaccination on the risk of developing Long-COVID and on existing Long-COVID symptoms: A systematic review. EClinicalMedicine. 2022;53:101624. https://doi.org/10.1016/j.eclinm.2022.101624

Aim: To investigate the association between COVID-19 vaccination and Long-COVID symptomatology.

Prevention (n=1)

Living systematic review

8. Webster et al. Interventions for the prevention of persistent post-COVID-19 olfactory dysfunction. Cochrane Database Syst Rev. 2022;9(9):CD013877. https://doi.org/10.1002/14651858.CD013877.pub3

Aim: To assess the effects (benefits and harms) of interventions that have been used, or proposed, to prevent persisting olfactory dysfunction due to COVID-19 infection.

This is an update of a 2021 review with four studies added.

Health and social (n=1)

9. Gualano et al. Returning to work and the impact of post COVID-19 condition: A systematic review. Work. 2022;3(2):405-413. https://doi.org/10.3233/WOR-220103

Aim: To evaluate the impact of lasting COVID-19 symptoms or disability on the working population upon their return to employment.

Symptoms and effects (n=19)

Review of reviews

10. Paterson et al. What are the long-term holistic health consequences of COVID-19 among survivors? An umbrella systematic review. J Med Virol. 2022;94(12):5653-5668. https://doi.org/10.1002/jmv.28086

Aim: To critically synthesise physical (including abnormal laboratory parameters), psychological, social, and spiritual impacts which extended beyond the acute phase of COVID-19 survivors.

Living review

11. Greer et al. COVID-19 postacute care major organ damage: a systematic review. BMJ Open. 2022;12(8):e061245. https://doi.org/10.1136/bmjopen-2022-061245

Aim: To examine major organ damage postdischarge among adults hospitalised for COVID-19 versus non-COVID-19 controls.

Standard systematic reviews

12. Ali et al. New-onset Parkinsonism as a COVID-19 infection sequela: A systematic review and meta-analysis. Ann Med Surg. 2022;80:104281. https://doi.org/10.1016/j.amsu.2022.104281

Aim: To investigate the disease pattern, signs and symptoms, treatment modalities, and outcomes in patients with COVID-19 infection and the development of Parkinsonism in these patients as a post COVID neurological sequelae.

13. Bertuccelli et al. Cognitive impairment in people with previous COVID-19 infection: A scoping review. Cortex. 2022;154:212-230. https://doi.org/10.1016/j.cortex.2022.06.002

Aim: To map cognitive domain impairments, their frequency, and associated psycho-affective disorders in people with a previous COVID-19 infection.

14. Choudhury et al. Gastrointestinal manifestations of Long COVID: A systematic review and meta-analysis. Therap Adv Gastroenterol. 2022;15:17562848221118403. https://doi.org/10.1177/17562848221118403

Aim: To assess the gastrointestinal manifestation of Long COVID and the frequency of these manifestations.

15. Chularojanamontri et al. New-onset and exacerbated skin diseases after COVID-19 infection: A systematic review. J Dermatol. 2022;1:10.1111/1346-8138.16501. https://doi.org/10.1111/1346-8138.16501

Aim: To examine the frequency of new-onset and exacerbated skin diseases after COVID-19 infection.

NB: This review was published as a letter to the Editor rather than a full paper.

16. Elhiny et al. What might COVID-19 patients experience after recovery? A comprehensive review. Int J Pharm Pract. 2022. https://doi.org/10.1093/ijpp/riac026

Aim: To describe the complications of COVID-19 after recovery from the infection.

17. Houben and Bonnechere. The impact of COVID-19 infection on cognitive function and the implication for rehabilitation: A systematic review and meta-analysis. Int J Environ Res Public Health. 2022;19(13):7748. https://doi.org/10.3390/ijerph19137748

Aim: To summarise the current level of evidence supporting the negative impact of COVID-19 infection on cognitive functions.

18. Lee et al. Pulmonary function and chest computed tomography abnormalities 6-12 months after recovery from COVID-19: a systematic review and meta-analysis. Respir Res. 2022;23(1):233. https://doi.org/10.1186/s12931-022-02163-x

Aim: To estimate the pooled prevalence of chronic pulmonary sequelae of PACS persisting 6–12 months after acute COVID-19.

19. Llana et al. Memory alterations after COVID-19 infection: a systematic review. Appl Neuropsychol Adult. 2022;15:1-14. https://doi.org/10.1080/23279095.2022.2123739

Aim: To update and further analyse the existing evidence of objective memory impairments in Long-COVID-19.

20. Pellegrino et al. Prevalence and clinical presentation of Long COVID in children: a systematic review. Eur J Pediatr. 2022;1-15. https://doi.org/10.1007/s00431-022-04600-x

Aim: To summarise Long COVID evidence and to assess prevalence and clinical presentation in children and adolescents.

21. Pinzon et al. Persistent neurological manifestations in Long COVID-19 syndrome: A systematic review and meta-analysis. J Infect Public Health. 2022;15(8):856-869. https://doi.org/10.1016/j.jiph.2022.06.013

Aim: To determine the prevalence of persistent neurological symptoms in patients with Long COVID Syndrome.

22. Schwendinger et al. Low cardiorespiratory fitness post-COVID-19: A narrative review. Sports Med. 2022:1–24. https://doi.org/10.1007/s40279-022-01751-7

Aim: To provide an in-depth discussion of cardiopulmonary sequelae post-COVID-19 as well as an overview of the contribution of selected organ systems to exercise intolerance based on the Wasserman gears.

23. Tan et al. Prognosis and persistence of smell and taste dysfunction in patients with COVID-19: meta-analysis with parametric cure modelling of recovery curves. BMJ. 2022;378:e069503. https://doi.org/10.1136/bmj-2021-069503 Erratum in: BMJ. 2022 Aug 9;378:o1939.

Aim: To clarify in patients with COVID-19 the recovery rate of smell and taste, proportion with persistent dysfunction of smell and taste, and prognostic factors associated with recovery of smell and taste.

24. Tariq et al. Just when we thought that COVID was over: A systematic review. Cureus. 2022;14(7):e27441. https://doi.org/10.7759/cureus.27441

Aim: To focus on the two main long-standing symptoms, fatigue and headaches, resulting in poor work performance and difficulty in performing daily activities of life.

NB: Includes both primary studies and reviews.

25. Trott et al. The prevalence of sensory changes in post-COVID syndrome: A systematic review and meta-analysis. Front Med. 2022;9:980253. https://doi.org/10.3389/fmed.2022.980253

Aim: To examine the prevalence of persistent anosmia, hyposmia, ageusia, and hypogeusia, as well as eye/vision and ear/hearing related Long-COVID symptoms.

26. Tufvesson et al. Semen parameters after SARS-CoV-2 infection: A literature review. Health Sci Rep. 2022;5(5):e745. https://doi.org/10.1002/hsr2.745

Aim: To evaluate how SARS-CoV-2 infection affects semen quality and male fertility.

27. Yang et al. Sequelae of COVID-19 among previously hospitalized patients up to 1 year after discharge: a systematic review and meta-analysis. Infection. 2022;50(5):1067-1109. https://doi.org/10.1007/s15010-022-01862-3

Aim: To present the occurrence of different symptoms up to 1 year of follow-up for previously hospitalized patients.

Evidence map

28. Franco et al. Long-term health symptoms and sequelae following SARS-CoV-2 infection: An evidence map. Int J Environ Res Public Health. 2022;19(16):9915. https://doi.org/10.3390/ijerph19169915

Aim: To map the available evidence on persistent symptoms and sequelae following SARS-CoV-2 in children and adults.

Risk factors, prevalence and treatment (n=1)

29. Joli et al. Post-COVID-19 fatigue: A systematic review. Front Psychiatry. 2022;13:947973. https://doi.org/10.3389/fpsyt.2022.947973

Aim: To describe symptoms, etiology, possible risk factors related to post-COVID-19 fatigue and the therapeutic approaches used for the treatment of post-COVID-19 fatigue.

2. Reviews completed, but not yet published

Symptoms and effects (n=2)

1. Galvez Sánchez et al. Disentangling the neuropsychological profile in patients with acute post-COVID or persistent COVID-19: a systematic review. PROSPERO 2022 CRD42022339992 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022339992

Review question(s): Is it possible to identify a common neuropsychological profile in patients who are experiencing an acute post-COVID-19 or persistent COVID condition?

2. Lampsas et al. Flow-mediated dilation impairment in convalescent COVID-19 patients: a systematic review and meta-analysis. PROSPERO 2022 CRD42022342040 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022342040

Review question(s): What is the standardized endothelial impairment, assessed by flow-mediated dilation (FMD) of the brachial artery, in individuals recovering from COVID-19 compared to non-COVID-19 controls?

3. Protocols of ongoing reviews related to Long COVID

Treatment and rehabilitation (n=24)

Living review

1. McKnight et al. The impact of physical activity on health and wellbeing/public health outcomes in adults with post COVID syndrome: A mixed methods living systematic review. PROSPERO 2022 CRD42022349762 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022349762

Review question(s): How does physical activity impact health and wellbeing/public health outcomes in adults with post COVID syndrome?

Standard systematic reviews

2. Armstrong et al. Non-pharmacological therapies to support symptoms that impact daily activities in individuals with Long COVID-19: A systematic review. PROSPERO 2022 CRD42022347678. Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022347678

Review question(s): To investigate non-pharmacological interventions that are available to individuals with Long COVID-19 and determine their effectiveness to improve symptoms that negatively impact daily activities.

3. Chao et al. A protocol for a systematic review and meta-analysis of the efficacy and safety of acupuncture in the treatment of taste disorders after rehabilitation from COVID-19. PROSPERO 2022 CRD42022364653 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022364653

Review question(s): Exploring the effectiveness and safety of acupuncture treatment on taste disorder after COVID-19 rehabilitation.

4. Chen et al. Traditional Chinese medicine combined with moxibustion in the treatment of Long-COVID: a protocol for a systematic review and meta-analysis. PROSPERO 2022 CRD42022351277 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022351277

Review question(s): To determine the effect of traditional Chinese medicine combined with moxibustion on the improvement of symptoms in patients with Long-COVID.

5. da Silva Melo et al. Comparative efficacy of different natural products on SARS-CoV-2: A systematic review of randomized controlled trials. PROSPERO 2022 CRD42022360375 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022360375

Review question(s): Can natural products be considered an effective complementary therapy option against the SARS-CoV-2 virus? What are the main effects of the use of these products on the clinical evolution of individuals diagnosed with COVID-19 or with the post-COVID-19 condition?

6. Dai and Lin. Effect of different acupuncture and moxibustion methods on Functional Dyspepsia caused by sequelae of COVID-19: a systematic review and meta-analysis protocol. PROSPERO 2022 CRD42022346782 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022346782

Review question(s): To investigate the effect of different acupuncture and moxibustion methods on Functional Dyspepsia caused by sequelae of COVID-19.

7. dos Santos Marinho et al. Benefits of post-COVID-19 pulmonary rehabilitation: a systematic review. PROSPERO 2022 CRD42022356794 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022356794

Review question(s): What are the main effects of a pulmonary rehabilitation program in post-COVID-19 patients in terms of physical fitness and quality of life?

8. Du et al. Efficacy and safety of acupuncture in the treatment of the sequela of olfactory disorders after infection with COVID-19: a systematic review and meta-analysis protocol. PROSPERO 2022 CRD42022346942 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022346942

Review question(s): What is the efficacy and safety of acupuncture in the treatment of the sequela of olfactory disorders after infection with COVID-19?

9. Farah et al. Effects of exercise rehabilitation interventions on physical functional performance in Post-Acute COVID-19 Syndrome patients: a systematic review and meta-analysis. PROSPERO 2022 CRD42022359493 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022359493

Review question(s): What are the effects of exercise rehabilitation interventions on functional parameters in Post-Acute COVID-19 Syndrome patients?

10. Gupta and Mallinson. Systematic review of effectiveness of pharmacological and nonpharmacological interventions for Long COVID treatment. PROSPERO 2022 CRD42022351208 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022351208

Review question(s): Are pharmacological and non-pharmacological interventions being studied effective on symptoms of Long COVID?

11. Ibrahim et al. A systematic review of trials investigating the efficacy of physical therapy management on functional capacity, psychological well-being, and quality of life in post COVID-19-patients. PROSPERO 2022 CRD42022362572 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022362572

Review question(s): Does physical therapy management affect the functional capacity, psychological well-being, and quality of life in post COVID-19-patients?

12. Kaijie and Jiaming. Efficacy and safety of herbal medicine sequela of COVID-19/Long COVID-19: a protocol for systematic review and meta-analysis. PROSPERO 2022 CRD42022346047 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022346047

Review question(s): To investigate the efficacy and safety of herbal medicine sequela of COVID-19/ Long COVID-19.

13. Kannan et al. A systematic review on the effectiveness of musculoskeletal physical therapy rehabilitation on quality of life in post COVID population. PROSPERO 2022 CRD42022312787 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022312787

Review question(s): Does musculoskeletal physical therapy rehabilitation improve quality of life in post COVID population?

14. Lam et al. Acupuncture for neurological and neuropsychiatric manifestations during Long-COVID: A systematic review. PROSPERO 2022 CRD42022354940 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022354940

Review question(s): Is acupuncture effective and safe in treating neurological and neuropsychiatric manifestations during Long-COVID?

15. Leite et al. Effects of home health care for adults with chronic respiratory diseases and post-COVID-19 syndrome on hospital bed turnover rate: A protocol of systematic review with meta-analysis. PROSPERO 2022 CRD42022342917 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022342917

Review question(s): Is home health care effective for adults with chronic respiratory diseases and post-COVID-19 syndrome on hospital bed turnover?

16. Liu et al. Efficacy of traditional Chinese exercises in patients with post-COVID-19 chronic fatigue syndrome: a protocol for systematic review and meta-analysis. PROSPERO 2022 CRD42022361265 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022361265

Review question(s): What is the efficacy of traditional Chinese exercises (TCEs) on post-COVID-19 Chronic fatigue syndrome?

17. Luo and Tang. Does vaccination help to reduce Long COVID symptoms? A systematic review and meta-analysis. PROSPERO 2022 CRD42022352334 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022352334

Review question: The purpose of this meta-analysis is to estimate associations between COVID-19 vaccination and Long COVID symptoms.

18. Martins et al. Telerehabilitation post-COVID-19: a systematic review. PROSPERO 2022 CRD42022347642 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022347642

Review question: Is telerehabilitation a good therapeutic strategy for post-COVID-19 patients?

19. Morgan et al. The effectiveness of inspiratory and expiratory muscle strength training on the pulmonary, functional, and quality of life outcomes in patients with post-COVID-19 and other restrictive lung diseases. PROSPERO 2022 CRD42022361676 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022361676

Review question(s): How does inspiratory and expiratory muscle strength training, and other respiratory exercises impact the pulmonary, functional, and quality of life outcomes in patients with persistent dyspnea who have post-COVID-19 and other restrictive diseases?

20. Qiang et al. Efficacy and safety of traditional Chinese medicine treatment for post-COVID conditions: a systematic review. PROSPERO 2022 CRD42022349177 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022349177

Review question(s): This systematic review aims to evaluate the efficacy and safety of traditional Chinese medicine (TCM) treatment for Long COVID.

21. Silveira Bianchim et al. The impact of physical activity in the management and treatment of post-COVID syndrome: a systematic review. PROSPERO 2022. CRD42022342033 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022342033

Review question(s): What is the impact of physical activity in managing and treating post-COVID syndrome. How to include physical activity to help manage post-COVID syndrome?

22. Utrera et al. Therapeutic exercise interventions through telerehabilitation in patients with post COVID-19 symptoms. PROSPERO 2022 CRD42022360887 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022360887

Review question(s): To investigate therapeutic exercise interventions through telerehabilitation in patients with post COVID-19 symptoms.

23. Xiao et al. Acupuncture for dry eye disease after recovery from COVID-19: a systematic review and meta-analysis protocol. PROSPERO 2022 CRD42022351657 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022351657

Review question(s): To determine acupuncture effect of dry eye disease after recovery from COVID-19.

24. Zeng et al. Efficacy and safety of the combination of modern medicine and traditional Chinese medicine in sequelae pulmonary fibrosis in convalescent COVID-19 patients: a protocol for a systematic review and meta-analysis. PROSPERO 2022 CRD42022346572 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022346572

Review question(s): To investigate the efficacy and safety of the combination of modern medicine and traditional Chinese medicine (TCM) in sequelae pulmonary fibrosis in convalescent COVID-19 patients.

Treatment/prevention (n=4)

25. Jennings et al. A systematic review of the evidence on the associations and safety of COVID-19 vaccination and post COVID-19 condition. PROSPERO 2022 CRD42022365386 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022365386

Review question(s) Does COVID-19 vaccination before COVID-19 infection decrease the risk of developing post COVID-19 condition (PCC) or the risk of developing certain PCC symptoms? Does COVID-19 vaccination after COVID-19 infection decrease the risk of developing PCC or the risk of developing certain PCC symptoms? Among those that already have PCC, does COVID-19 vaccination lead to changes in their symptoms? Is it safe to get a COVID-19 vaccine for individuals who have PCC?

26. Qi et al. The association of COVID-19 vaccination with Long-COVID risk: A meta-analysis of cohort studies. PROSPERO 2022 CRD42022345978 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022345978

Review question(s): The purpose of this study is to evaluate the relationship between vaccination against COVID-19 and the risk of Long-COVID.

27. Sinopoli et al. Effects of vitamin supplementation in the prevention and management of COVID-19 and Long-COVID: a systematic review of clinical trials. PROSPERO 2022 CRD42022362055 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022362055

Review question(s): What are the clinical effects of vitamin administration in the prevention and management of COVID-19 and Long COVID?

28. Watanabe et al. Protective effect of COVID-19 vaccination against Long COVID syndrome: A systematic review and meta-analysis. PROSPERO 202 CRD42022360399 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022360399

Review question(s) How does COVID-19 vaccination before or after SARS-CoV-2 infection affect Long COVID?

Health & Social (n=1)

29. Xiang et al. Socio-economic impacts of Long COVID and policies and programs to mitigate these impacts: A systematic review. PROSPERO 2022 CRD42022357056 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022357056

Review question(s) What are the social and economic impacts of Long COVID? What policies or programs are effective in mitigating the impacts of Long COVID?

Symptoms/effects (n=30)

30. Avais et al. A systematic review of oral manifestations in post-acute COVID-19 syndrome. PROSPERO 2022 CRD42022336065 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022336065

Review question(s): Which are the most frequent oral manifestations in post-acute COVID-19 syndrome?

31. Brito de Almeida et al. Clinical characteristics of acute and post-acute headache associated with COVID-19: a systematic review and meta-analysis. PROSPERO 2022 CRD42022359733 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022359733

Review question(s): What are the main clinical characteristics of acute and post-acute headache associated with COVID-19?

32. Bundzman de Oliveira et al. Heart rate variability and post-COVID syndrome: a systematic review. PROSPERO 2022 CRD42022351469 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022351469

Review question(s):How does COVID-19 impact on heart rate variability?

33. Collins et al. Risk and prevalence of long-term cardiovascular outcomes post COVID-19 infection: A rapid review of the evidence. PROSPERO 2022 CRD42022348402 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022348402

Review question(s): Among those with history of COVID-19 infection, what are the risks/prevalence of long-term (≥12 weeks post onset) cardiovascular outcomes?

34. Daza Arana et al. Measurement of fatigue in post COVID-19 syndrome: a systematic review. PROSPERO 2022 CRD42022365164 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022365164

Review question(s):What are the measures and results of fatigue in the evaluation of post COVID-19 syndrome?

35. de Oliveira Gomes et al. Main serologic markers in reactive arthritis post-COVID-19: a systematic review. PROSPERO 2022 CRD42022343224 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022343224

Review question(s): What are the main serological markers in patients affected by post-COVID-19 arthritis?

36. Dinkel et al. Specific features of Long COVID in adults: a systematic review and meta-analysis of controlled studies. PROSPERO 2022 CRD42022352752 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022352752

Review question(s): Which symptoms are typical for patients suffering from Long COVID? Which sociodemographic, clinical, and psychological variables are associated with Long COVID syndrome?

37. Feng et al. Malnutrition and sarcopenia in patients during and after COVID-19 infection: a systematic review and meta-analysis. PROSPERO 2022 CRD42022338383 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022338383

Review question(s) What are the manifestations, screening methods, nutritional management, and exercise recommendations of malnutrition and sarcopenia in patients during and after COVID-19 infection?

38. Gomes et al. Neurological and neuropsychiatric manifestations of the post COVID syndrome in South America. PROSPERO 2022 CRD42022337256 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022337256

Review question(s): What is the prevalence of neurological and neuropsychiatric symptoms in the Long COVID syndrome in the different acute manifestations groups, and in vaccinated and unvaccinated in South America?

39. Grainge and Balakrishnan. A systematic review of venous thromboembolism (VTE) and VTE-related mortality following COVID-19 infection. PROSPERO 2022 CRD42022348397 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022348397

Review question(s): To provide clinically relevant data on the risk and outcomes of VTE (pulmonary embolism and/or deep vein thrombosis) in COVID-19.

NB: Two objectives relate to the post COVID period. To explore the long-term risk of blood clots after hospital discharge in individuals who have contracted COVID-19. To compare the risk of long-term risk of blood clots after hospital discharge between individuals who had COVID-19 and individuals who did not have COVID-19 infection.

40. Higgins, et al. Long-term outcomes of critically ill COVID-19 patients: a systematic review. PROSPERO 2022 CRD42022347505 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022347505

Review question(s): What are the long-term outcomes of adult patients admitted to ICU for COVID-19, including long-term mortality, quality of life, functional outcomes, and morbidity outcomes?

41. Ikpeme and Saibu. A systematic review of chronic neurologic complications of COVID 19; a potential risk factor for Narcolepsy, Parkinson's Disease, and Multiple Sclerosis. PROSPERO 2022 CRD42022346649 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022346649

Review question(s): Is there a risk of having narcolepsy after COVID-19 infection? What is the risk of having PD after COVID-19 infection? Does COVID-19 infection contribute to the subsequent development of MS?

42. Kumar Chourasia et al. Association of Long COVID-19 with new onset of diabetes mellitus among the adult population: a systematic review. PROSPERO 2022 CRD42022352835 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022352835

Review question(s): Is there any association of Long COVID-19 with new onset of diabetes among the adult population?

43. Luo et al. Prevalence and risk factors of post COVID-19 symptoms: a systematic review and meta-analysis. PROSPERO 2022 CRD42022345114 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022345114

Review question(s): What is the prevalence of post-COVID-19 symptoms and identify potential risk factors for post-COVID-19 symptoms?

44. Marshall and Chen. Systematic review of dementia risk following COVID-19 infection. PROSPERO 2022 CRD42022357597 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022357597

Review question(s): Are COVID-19 survivors more at risk of developing dementia compared to those without a history of COVID-19 infection? Are there any patient, illness or treatment factors that impact on longer-term risk of dementia following COVID-19 infection?

45. Mudge et al. Summarising evidence of associations of COVID-19 with a future diagnosis of inflammatory rheumatic and musculoskeletal diseases: a rapid review. PROSPERO 2022 CRD42022352773 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022352773

Review question(s) What inflammatory iRMD's have been reported as sequelae of an acute COVID-19 infection? What mechanisms for these observations have been proposed? What clinical lessons can be learnt and what research questions are proposed?

46. Muley et al. A systematic review and meta-analysis of manifestations of post COVID illness and its relation with inflammatory markers. PROSPERO 2022 CRD42022341471 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022341471

Review question(s): What are the various manifestations of post COVID illness and what is the relation between them and the inflammatory markers?

47. Nogueira and Cocate. The severity of symptoms affects the capacity of exercise post-COVID-19, according to gender: a systematic review and meta-analysis. PROSPERO 2022 CRD42022346389 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022346389

Review question: Is COVID-19 independent of symptoms status associated with lower post-COVID exercise capacity?

48. Ostovan et al. Neuropsychiatric presentations of Long-COVID: A systematic review and meta-analysis. PROSPERO 2022 CRD42022356269 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022356269

Review question(s): What are the neuropsychiatric presentations of Long COVID?

49. Plett et al. Systematic review on the impact of COVID-19 on the mental health of children and young people: long term effects and preventive options. PROSPERO 2022 CRD42022347599 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022347599

Review question(s): What is the impact of COVID-19 and the pandemic on the mental health of children, adolescents, and their families?

50. Price and Escobar. Incidence of type 2 diabetes mellitus in patients with persistent COVID-19 syndrome. Review and meta-analysis. PROSPERO 2022 CRD42022339629 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022339629

Review question(s): What is the incidence of type 2 diabetes mellitus in patients with persistent COVID-19 syndrome?

51. Pullen et al. A systematic review of the impact of Long COVID on children and associated interventions. PROSPERO 2022 CRD42022341038 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022341038

Review question(s): What is the impact of Long COVID on children's lives and activities? What interventions work to address Long COVID in children?

52. Shukla and Gyereh. Prevalence of psychophysiological stresses: a systematic review and meta-analysis of post-COVID-19 psychophysiological complications. PROSPERO 2022 CRD42022363505 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022363505

Review question(s): How does psychophysiological stress in COVID-19 patients and healthcare professionals influence the manifestation of psychophysiological complications post-COVID-19? How do these complications in patients and healthcare professionals differ in response to psychophysiological stress?

53. Silva and Weber. Changes in health conditions and lifestyle in individuals who have had SARS-CoV-2 coronavirus infection – a systematic review. PROSPERO 2022 CRD42022353298 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022353298

Review question(s): What are the impacts on health conditions and lifestyle in individuals who have had the SARS-CoV-2 coronavirus infection?

54. Stanley and Campbell. A systematic review of cognitive deficits across individuals with post COVID-19 conditions using validated cognitive assessment tools. PROSPERO 2022

CRD42022359349 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022359349

Review question(s): What is the pattern of cognitive dysfunction in patients with persisting COVID-19/post acute COVID-19 syndrome?

55. Stanley and Campbell. The overlap of Post Acute COVID-19 and Myalgic Encephalomyelitis/Chronic Fatigue Syndrome (ME/CFS): a systematic review. PROSPERO 2022 CRD42022356992 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022356992

Review question(s) How common is the overlap of ME/CFS and PACS?

56. Subramaniam et al. Long-term effects of COVID-19 on patients up to two years post-diagnosis: a systematic review and meta-analysis. PROSPERO 2022 CRD42022348453 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022348453

Review question(s): What are the symptoms and/or health effects of Long COVID (O) that exist in COVID-19 survivors (P) one month to two years post-diagnosis compared to non-infected individuals (C)?

57. Supit et al. COVID-19 association with human semen quality: a systematic review and meta-analysis of pre-post exposure study. PROSPERO 2022 CRD42022356886 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022356886

Review question(s): Does history or active infection of COVID-19 in adult males affect the quality of their sperm before and after infection?

58. Zhang et al. Long-term cardiovascular outcomes of COVID-19 in adults: a systematic review and meta-analysis. PROSPERO 2022 CRD42022353965 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022353965

Review question(s): Is there an increased risk of cardiovascular disease after SARS-CoV-2 infection compared with uninfected?

59. Zheng et al. Long term changes in pulmonary function and outcomes in adults with COVID-19 infection: a systematic review and meta-analysis. PROSPERO 2022 CRD42022320974 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022320974

Review question(s): What are the impacts (past 3 months) of COVID-19 infection in adults on long-term lung function?

Risk factors/pathobiology (n=4)

60. Bashir et al. The impact of corticosteroid therapy on the development of post-COVID syndrome: a systematic review and meta-analysis. PROSPERO 2022 CRD42022346929 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022346929

Review question(s): To evaluate the effect of corticosteroid therapy on the development of the post-COVID syndrome.

61. Guiot et al. Systematic review of overlapping miRNA pattern in COVID-19 and Idiopathic Pulmonary Fibrosis: potential therapeutic targets for post-COVID-19 lung fibrosis. PROSPERO 2022 CRD42022341016 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022341016

Review question(s): Does COVID-19 and Idiopathic Pulmonary Fibrosis (IPF) patients share aberrant expressed miRNAs that might be implicated in the development of post-COVID lung fibrosis?

62. Heidenreich et al. The role of cognitive reserve in predicting cognitive functioning after COVID-19 infection: a systematic review. PROSPERO 2022 CRD42022360670 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022360670

Review question(s) Can cognitive reserve metrics (e.g., level of education, premorbid/verbal intelligence, occupational complexity, cognitively stimulating activities and/or social engagement), be used to predict cognitive outcomes following COVID-19 infection? That is, does a larger cognitive reserve protect individuals from the adverse effects of COVID-19 on cognition?

63. Li et al. Factors in relation to pediatric Long COVID: a meta-analysis. PROSPERO 2022 CRD42022351841 Available from: https://www.crd.york.ac.uk/prospero/display_record.php?ID=CRD42022351841

Review question(s): What are the potential determinants of Long COVID in pediatric patients?

Appendix 1: Search strategies

MEDLINE ALL

(includes: Epub Ahead of Print, In-Process & Other Non-Indexed Citations, Ovid MEDLINE Daily and Ovid MEDLINE)

via Ovid http://ovidsp.ovid.com/

Date range: 1946 to September 30, 2022

Date searched: 3rd October 2022

Records retrieved: 417

1 post-acute COVID-19 syndrome.mp. (1323)
2 COVID-19 post-intensive care syndrome.mp. (5)
3 COVID-19/ or SARS-CoV-2/ (191735)
4 Syndrome/ (121265)
5 Survivors/ (29101)
6 4 or 5 (150254)
7 3 and 6 (779)
8 1 or 2 or 7 (2034)
9 ((long adj (covid$ or covid-19 or covid19 or coronavirus)) or longcovid$).ti,ab,kf,ot,bt. (1924)
10 ((post adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) or postcovid$).ti,ab,kf,ot,bt. (5313)
11 ((post acute or postacute) adj2 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (475)
12 PASC.ti,ab,kf,ot,bt. (452)
13 (sequela$ adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (1535)
14 (chronic adj2 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (218)
15 ((long$ term or longterm) adj3 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (1414)
16 (persist$ adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (2625)
17 ((post discharg$ or postdischarg$) adj5 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (89)
18 ((long haul$ or longhaul$) adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (190)
19 (surviv$ adj3 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (2178)
20 (after adj (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (5821)
21 ((ongoing or lasting or prolonged or fluctuat$ or residual$ or continu$ or linger$) adj6 (symptom$ or effect$ or complication$ or sequela$ or syndrome or illness$ or disorder$ or dysfunction$ or impair$ or impact$ or consequence$) adj6 (covid$ or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)).ti,ab,kf,ot,bt. (1908)
22 or/9-21 (18614)
23 8 or 22 (18978)
24 systematic review.mp,pt. (273831)
25 search:.tw. (594658)
26 meta analysis.mp,pt. (255782)
27 review.pt. (3052682)
28 24 or 25 or 26 or 27 (3535333)
29 23 and 28 (2991)

30 qualitative review$.ti,ab,kf,ot,bt. (1614)
31 realist synthes$.ti,ab,kf,ot,bt. (345)
32 realist review$.ti,ab,kf,ot,bt. (588)
33 (meta-synthes$ or metasynthes$).ti,ab,kf,ot,bt. (1864)
34 (living adj2 (review$ or map$)).ti,ab,kf,ot,bt. (613)
35 pooled analysis.ti,ab,kf,ot,bt. (11589)
36 or/30-34 (4872)
37 23 and 36 (31)
38 29 or 37 (2994)
39 (202207$ or 202208$ or 202209$).dt. (414181)
40 38 and 39 (420)
41 exp animals/ not humans.sh. (5052290)
42 40 not 41 (417)

CINAHL Plus
via Ebsco https://www.ebsco.com/
Date range: Inception to 20220915
Date searched: 3rd October 2022
Records retrieved: 95

S1 (MH "Post-Acute COVID-19 Syndrome") 401

S2 TI (long N1 (covid* or covid-19 or covid19 or coronavirus) or longcovid*) OR AB (long N1 (covid* or covid-19 or covid19 or coronavirus) or longcovid*) 748

S3 TI (post N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2) or postcovid*) OR AB (post N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2) or postcovid*) 1,029

S4 TI (("post acute" or post-acute or postacute) N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (("post acute" or post-acute or postacute) N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 204

S5 TI PASC OR AB PASC 70

S6 TI (sequela* N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (sequela* N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 373

S7 TI (chronic N2 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (chronic N2 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 201

S8 TI ((long* N1 term or long-term or longterm) N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB ((long* N1 term or long-term or longterm) N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) 756

S9	TI (persist* N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (persist* N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2))	667
S10	TI ((post N1 discharg* or post-discharg* or postdischarg*) N4 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB ((post N1 discharg* or post-discharg* or postdischarg*) N4 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2))	37
S11	TI ((long N1 haul* or long-haul* or longhaul*) N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB ((long N1 haul* or long-haul* or longhaul*) N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2))	78
S12	TI (surviv* N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (surviv* N3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2))	813
S13	TI (after N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB (after N1 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2))	2,907
S14	TI ((ongoing or lasting or prolonged or fluctuat* or residual* or continu* or linger*) N6 (symptom* or effect* or complication* or sequela* or syndrome or illness* or dysfunction* or disorder* or impair* or impact* or consequence*) N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)) OR AB ((ongoing or lasting or prolonged or fluctuat* or residual* or continu* or linger*) N6 (symptom* or effect* or complication* or sequela* or syndrome or illness* or dysfunction* or impair* or impact* or consequence*) N6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2))	667
S15	S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8 OR S9 OR S10 OR S11 OR S12 OR S13 OR S14	7,023
S16	(MH "Systematic Review")	114,178
S17	(ZT "systematic review")	134,352
S18	(ZT "meta analysis")	49,147
S19	(MH "Meta Analysis")	65,675
S20	TI (meta-analys* or metaanaly*) OR AB (meta-analys* or metaanaly*)	98,070
S21	TI systematic* N1 review* OR AB systematic* N1 review*	138,411
S22	S16 OR S17 OR S18 OR S19 OR S20 OR S21	234,854

S23	(ZT "review")	351,170
S24	AB systematic* or AB methodologic* or AB quantitative* or AB research* or AB literature* or AB studies or AB trial* or AB effective*	2,811,046
S25	(S23 AND S24)	164,267
S26	S22 OR S25	390,681
S27	S15 AND S26	418
S28	(MH "Meta Synthesis")	1,969
S29	TI qualitative N1 review* OR AB qualitative N1 review*	3,484
S30	TI (realist N1 (review* or synthes*)) OR AB (realist N1 (review* or synthes*))	482
S31	TI (meta-synthes* or metasynthes*) OR AB (meta-synthes* or metasynthes*)	1,587
S32	TI (living N2 (review* or map*)) AND (living N2 (review* or map*))	186
S33	TI pooled N1 analys* OR AB pooled N1 analys*	7,739
S34	S28 OR S29 OR S30 OR S31 OR S32 OR S33	14,110
S35	S15 AND S34	20
S36	S27 OR S35	426
S37	EM 202207-	93,269
S38	(ZD "in process")	704,047
S39	S37 OR S38	797,316
S40	S36 AND S39	95

Cochrane Database of Systematic Reviews (CDSR)
via Wiley http://onlinelibrary.wiley.com/
Issue: Issue 9 of 12, September 2022
Date searched: 3rd October 2022
Records retrieved: 12

#1	MeSH descriptor: [COVID-19] this term only	2305
#2	MeSH descriptor: [SARS-CoV-2] this term only	1120
#3	MeSH descriptor: [Syndrome] this term only	5570
#4	MeSH descriptor: [Survivors] this term only	1281
#5	#1 or #2	2310
#6	#3 or #4	6850
#7	#5 and #6	24
#8	(long next (covid* or covid-19 or covid19 or coronavirus) or longcovid*):ti,ab,kw	125
#9	(post next (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2) or postcovid*):ti,ab,kw	324

#10 ((post acute or postacute) near/2 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 635

#11 PASC:ti,ab,kw 25

#12 (sequela* near/6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 78

#13 (chronic near/2 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 23

#14 ((long* term or longterm) near/3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 438

#15 (persist* near/6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 129

#16 ((post discharg* or postdischarg*) near/5 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 642

#17 ((long haul* or longhaul*) near/6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 250

#18 (surviv* near/3 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 134

#19 (after next (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 157

#20 ((ongoing or lasting or prolonged or fluctuat* or residual* or continu* or linger*) near/6 (symptom* or effect* or complication* or sequela* or syndrome or illness* or dysfunction* or disorder* or impair* or impact* or consequence*) near/6 (covid* or covid-19 or covid19 or coronavirus or SARS-CoV-2 or SARS-CoV2 or SARSCoV2 or SARSCoV-2)):ti,ab,kw 88

#21 {OR #8-#20} 1565

#22 #7 or #21 in Cochrane Reviews, Cochrane Protocols 12

Epistemonikos
https://www.epistemonikos.org/
Date searched: 3rd October 2022
Records retrieved: 375

1. (title:("long covid" OR long-covid OR longcovid OR "long covid 19" OR long-covid-19 OR longcovid19 OR "long covid19" OR long-covid19 OR "longcovid 19" OR longcovid-19 OR "long coronavirus" OR long-coronavirus OR longcoronavirus) OR abstract:("long covid" OR long-covid OR longcovid OR "long covid 19" OR long-covid-19 OR longcovid19 OR "long covid19" OR long-covid19 OR "longcovid 19" OR longcovid-19 OR "long coronavirus" OR long-coronavirus OR longcoronavirus)) OR (title:("post covid" OR post-covid OR postcovid OR "post covid 19" OR post-covid-19 OR postcovid19 OR "post covid19" OR post-covid19 OR "postcovid 19" OR postcovid-19 OR "post coronavirus" OR post-coronavirus OR postcoronavirus OR "post SARS CoV 2" OR post-SARS-CoV-2 OR postSARSCoV2 OR "post SARS CoV2" OR "post-SARS CoV2" OR "postSARS CoV2" OR "post SARS-CoV2" OR post-SARS-CoV2 OR postSARS-CoV2 OR "post SARSCoV 2" OR "post-SARSCoV 2" OR "postSARSCov 2" OR "post SARSCoV-2" OR "post-SARSCoV-2" OR "postSARSCoV-2" OR PASC) OR

abstract:("post covid" OR post-covid OR postcovid OR "post covid 19" OR post-covid-19 OR postcovid19 OR "post covid19" OR post-covid19 OR "postcovid 19" OR postcovid-19 OR "post coronavirus" OR post-coronavirus OR postcoronavirus OR "post SARS CoV 2" OR post-SARS-CoV-2 OR postSARSCoV2 OR "post SARS CoV2" OR "post-SARS CoV2" OR "postSARS CoV2" OR "post SARS-CoV2" OR post-SARS-CoV2 OR postSARS-CoV2 OR "post SARSCoV 2" OR "post-SARSCoV 2" OR "postSARSCov 2" OR "post SARSCoV-2" OR "post-SARSCoV-2" OR "postSARSCoV-2" OR PASC)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 53 hits

2. (title:("post acute" OR post-acute OR postacute) OR abstract:("post acute" OR post-acute OR postacute)) AND (title:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2) OR abstract:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 12 hits

3. (title:("long haul" OR "long hauler" OR "long haulers" OR long-haul* OR longhaul*) OR abstract:("long haul" OR "long hauler" OR "long haulers" OR long-haul* OR longhaul*)) AND (title:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2) OR abstract:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 1 hit

4. (title:(sequela*) OR abstract:(sequela*)) AND (title:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2) OR abstract:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 20 hits

5. (title:("chronic covid" OR "chronic covid-19" OR "chronic covid19" OR "chronic coronavirus" OR "chronic SARS CoV 2" OR "chronic SARS-CoV-2" OR "chronic SARSCoV2" OR "chronic SARS CoV2" OR "chronic SARS-CoV2" OR "chronic SARSCoV 2" OR "chronic SARSCoV-2") OR abstract:("chronic covid" OR "chronic covid-19" OR "chronic covid19" OR "chronic coronavirus" OR "chronic SARS CoV 2" OR "chronic SARS-CoV-2" OR "chronic SARSCoV2" OR "chronic SARS CoV2" OR "chronic SARS-CoV2" OR "chronic SARSCoV 2" OR "chronic SARSCoV-2")) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 1 hit

6. (title:("long term" OR "longer term" OR long-term OR longer-term) OR abstract:("long term" OR "longer term" OR long-term OR longer-term)) AND (title:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2) OR abstract:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 82 hits

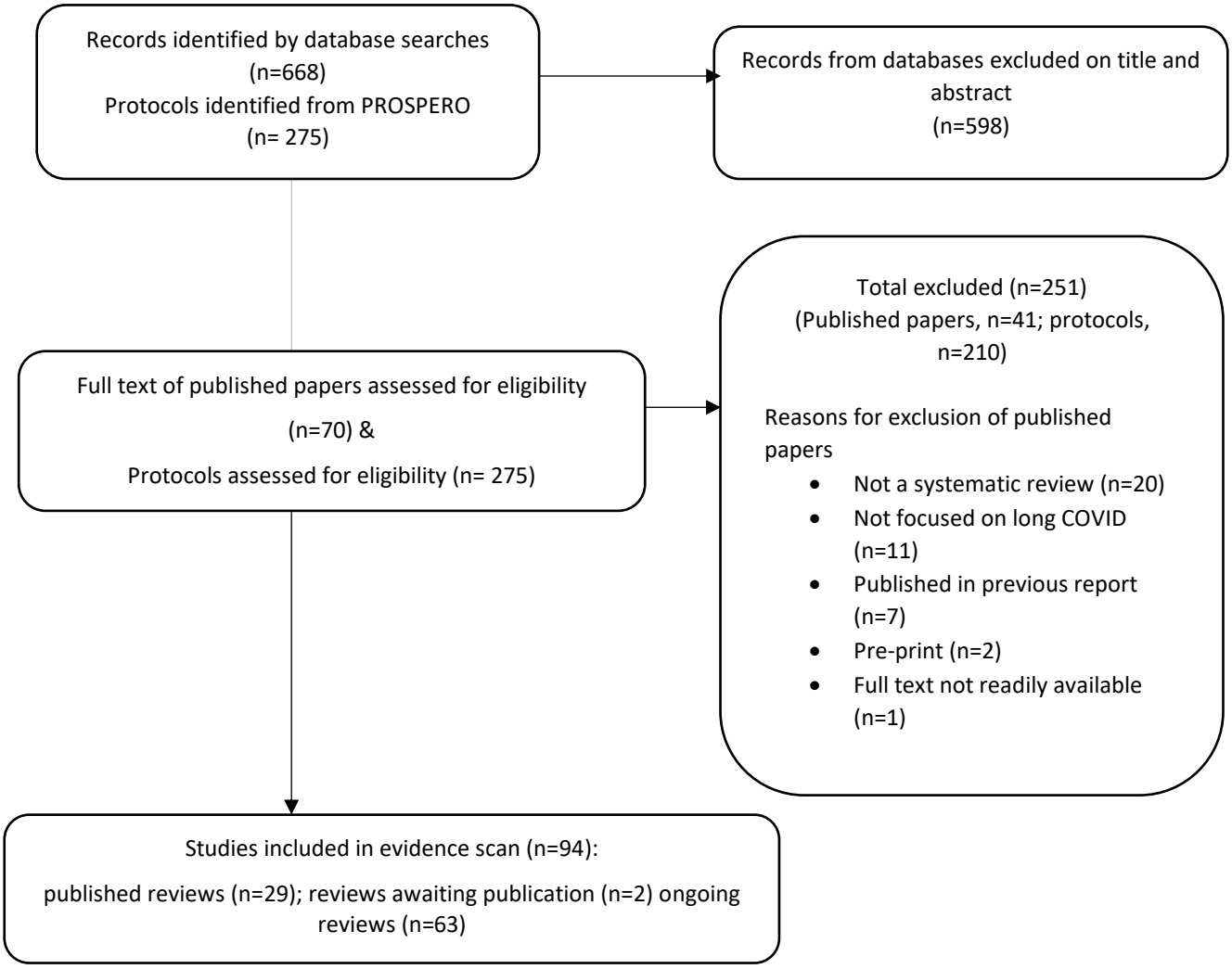
7. (title:(persist*) OR abstract:(persist*)) AND (title:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2) OR abstract:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 28 hits

8. (title:("post discharge" OR post-discharge OR postdischarge) OR abstract:("post discharge" OR post-discharge OR postdischarge)) AND (title:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2) OR abstract:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 4 hits

9. (title:(survivor* OR survived) OR abstract:(survivor* OR survived)) AND (title:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2) OR abstract:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 30 hits

10. (title:(ongoing OR lasting OR prolonged OR fluctuat* OR residual* OR continu* OR linger*) OR abstract:(ongoing OR lasting OR prolonged OR fluctuat* OR residual* OR continu* OR linger*)) AND (title:(symptom* OR effect* OR complication* OR sequela* OR syndrome OR illness* OR disorder* OR dysfunction* OR impair* OR impact* OR consequence* OR manifest*) OR abstract:(symptom* OR effect* OR complication* OR sequela* OR syndrome OR illness* OR disorder* OR dysfunction* OR impair* OR impact* OR consequence* OR manifest*)) AND (title:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2) OR abstract:(covid OR covid-19 OR covid19 OR coronavirus OR "SARS CoV 2" OR SARS-CoV-2 OR SARSCoV2 OR "SARS CoV2" OR SARS-CoV2 OR "SARSCoV 2" OR SARSCoV-2)) entry date 1st July 2022 onwards, limited to systematic reviews or broad syntheses, 144 hits

Appendix 2: Flow of studies through the review



The NIHR Policy Research Programme Reviews Facility aims to put the evidence into development and implementation of health policy through:

- Undertaking policy-relevant systematic reviews of health and social care research
- Developing capacity for undertaking and using reviews
- Producing new and improved methods for undertaking reviews
- Promoting global awareness and use of systematic reviews in decision-making

The Reviews Facility is a collaboration between the following centres:
EPPI Centre (Evidence for Policy and Practice Information Centre),
UCL Institute of Education, University College London;
CRD (Centre for Reviews and Dissemination), University of York;
and the London School of Hygiene and Tropical Medicine.

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