

CADTH Health Technology Review

Clinical Classification and Clinical Interventions for Post–COVID-19 Condition: A Scoping Review – Project Protocol

Protocol Registration

Open Science Framework: <https://osf.io/xmusb>

National Collaborating Centre for Methods and Tools: <https://www.nccmt.ca/covid-19/covid-19-evidence-reviews/492>

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Introduction and Rationale

COVID-19 is an infectious disease caused by the severe acute respiratory syndrome coronavirus-19 (SARS-CoV-19).¹ COVID-19 was first identified in late 2019 and was initially characterized by WHO as a relatively short-term, acute disease.¹ Approximately 80% of the cases are mild or even asymptomatic.² Mild cases would recover 2 weeks after symptom onset, and severe cases would take 3 to 6 weeks to recover after symptom onset.² The post-COVID-19 condition, commonly referred to as long COVID (among many other terms being used), is a new condition recognized by the Public Health Agency of Canada (PHAC) and WHO.^{3,4} The condition affects some people following the acute phase of COVID-19 and could potentially affect hundreds of thousands of people in Canada and millions of people worldwide. A patient-led movement was launched in 2020 to raise awareness about post-COVID-19 condition and those affected with it continue to advocate for its recognition, as it has not been given similar attention as acute COVID-19.⁵

“Acute COVID-19” has been often referred to the initial infection phase, defined as the period up to 4 weeks after being infected.^{6,7} After 4 weeks, “long COVID” or other terms may be used by individuals to describe new or ongoing symptoms.^{6,8} WHO has adopted the term “post-COVID-19 condition” and mentions that multiple names have been used, including long COVID, chronic COVID syndrome, late sequelae of COVID-19, post-acute sequelae SARS-CoV-2 (PASC), and long-haul COVID, among others.⁹ On October 6, 2021, WHO published a case definition of the post-COVID-19 condition, developed by a Delphi consensus process that included patients, clinicians, researchers and others, representing all WHO regions.¹⁰

“Post-COVID-19 condition occurs in individuals with a history of probable or confirmed SARS-CoV-2 infection, usually 3 months from the onset of COVID-19 with symptoms and that last for at least 2 months and cannot be explained by an alternative diagnosis. Common symptoms include fatigue, shortness of breath, cognitive dysfunction but also others and generally have an impact on everyday functioning. Symptoms may be new onset following initial recovery from an acute COVID-19 episode or persist from the initial illness. Symptoms may also fluctuate or relapse over time” (p. 1)¹⁰

Post-COVID-19 condition includes a variety of symptoms and signs involving different organs or systems and this term will be used throughout this review.¹¹ In a systematic review published in August 2021, the prevalence of 55 long-term effects were estimated and the most common symptoms were fatigue, headache, attention disorder, and hair loss.¹¹ These symptoms occurred 14 to 110 days post-viral infection.¹¹ The Public Health Agency of Canada (PHAC) estimated 3 in 5 laboratory-confirmed cases experienced persistent or new symptoms 12 weeks after COVID-19 infection.¹² The most common symptoms among laboratory-confirmed cases with post-COVID-19 condition include fatigue, general pain or discomfort, sleep disturbances, and shortness of breath.¹²

A scoping review that searched the literature until January 30, 2021, showed that the interventions to manage symptoms related to post-COVID-19 condition are currently being studied.¹³ There are several approaches proposed or implemented to treat post-COVID-19 condition, such as rehabilitation, multi-disciplinary approaches, and primary care support.¹³ In contrast, there are few studies on the risk factors for and prevention of long COVID.¹³

Since its emergence in 2019, the COVID-19 pandemic has been spreading quickly. The numbers of cumulative confirmed cases increased globally from 102 million on January 30¹⁴ to 208 million on August 16, 2021.¹⁵ COVID-19 variants that are more contagious and spread

more quickly are emerging, particularly the Delta variant.¹⁶ On July 11, 2021, the COVID-19 Delta variant was detected in more than 80% of the samples sequenced in Canada, compared to less than 10% in May 2021.¹⁷ COVID-19 has been evolving rapidly and its long-term consequences have been under investigation.¹⁸ A clear overview of current evidence landscape is necessary to understand emerging issues that have not been well studied and the topics that may be neglected in recent studies. Based on jurisdictional feedback received from CADTH customers in September of 2021, it was noted that there is a need for an evidence hub on the post-COVID-19 condition.

The purpose of the report is to map the current evidence landscape related to post-COVID-19 condition and to identify research gaps. Current clinical classification (e.g., diagnostic criteria) and clinical interventions, including preventive measures, screening and diagnostic approaches, treatments, therapies, and rehabilitation, for post-COVID-19 condition in any population and setting are of interest. The final deliverable of this project will include a scoping review report. The findings of this scoping review, specifically the identified knowledge gaps and uncertainties, will be used to inform a larger CADTH condition-level review on post-COVID-19 condition. The findings will also contribute to the condition-level review's online platform that will include an evidence map. A condition-level review is an assessment that incorporates all aspects of a condition, from prevention and detection to treatment and management.

Objective

The purpose of this scoping review is to map the available evidence, identify the types and numbers of primary studies, systematic reviews, and real-world evidence available in peer-reviewed journals and grey literature. In addition, the purpose is to analyze knowledge and research gaps regarding the clinical classification and clinical interventions, preventive measures, screening and diagnostic approaches, treatments, therapies, and rehabilitation, for people with post-COVID-19 condition in any setting to better assess additional research requirements to support health care decision-making needs in Canada.

Research Questions

The scoping review will address the following research questions using published methods.^{19,20} Details on the specific concept and context are included in Table 1.

1. What is the current evidence landscape on the clinical classification and clinical interventions, including preventive measures, prognostic factors and screening methods, treatment, and rehabilitation, for people of any age with post-COVID-19 condition in any setting?
2. What are the knowledge gaps and uncertainties on the clinical classification and clinical interventions including preventive measures, prognostic factors and screening methods, treatment, and rehabilitation, for people of any age with post-COVID-19 condition in any setting?

Methods

Protocol Development

To inform the preparation of this protocol, a CADTH Horizon Scanning report of the existing literature, including HTAs and systematic reviews was conducted.²¹ This protocol was written a priori based on well-established methods,²⁰ using appropriate reporting guidelines (i.e., the Preferred Reporting Items for Systematic reviews and Meta-Analyses for Protocols [PRISMA-P])²² for guidance on clarity and completeness. However, there are sections in the PRISMA-P that are not applicable to scoping reviews. Including risk of bias assessment, data synthesis, assessment of meta-bias, and confidence in the cumulative evidence. These sections were not included in this protocol. The protocol and final scoping review report will be externally reviewed by a content expert and methodologist, and targeted feedback on the draft scoping review report will be sought from knowledge users, including key stakeholders that may include clinicians and policy-makers, and patient representatives. We will register the review topic at the National Collaborating Centre for Methods and Tools (NCCMT; <https://www.nccmt.ca/covid-19/covid-19-evidence-reviews>) to increase awareness and avoid duplication, and post the protocol on the Open Science Framework (OSF; <https://osf.io/>). Any deviations from the protocol will be disclosed in the final report and posted alongside the protocol in OSF.²³

Study Design

The research questions for the review will be addressed by conducting a scoping review of primary studies and other relevant research, including systematic reviews, rapid reviews, preprints, and grey literature. This review will identify and classify relevant literature. The final report will be reported using the Preferred Reporting Items for Systematic reviews and Meta-Analyses extension for Scoping Reviews (PRISMA-ScR), with relevant adaptations suggested based on PRISMA-2020.^{20,24}

Selection and Eligibility Criteria

The review's eligibility criteria, including the specific Population, Concept, and Context (PCC) can be found in Table 1. The inclusion criteria were informed by the CADTH Horizon Scanning.²¹

Literature Search Methods

The literature search will be performed by an information specialist using a peer-reviewed search strategy according to the PRESS (Peer Review of Electronic Search Strategies checklist).²⁶

Published literature will be identified by searching the following bibliographic databases: MEDLINE All (1946–), Embase (1974–), APA PsycInfo (1806–), and the Cochrane Central Register of Controlled Trials (CENTRAL), via the Ovid platform; and the Cumulative Index to Nursing and Allied Health Literature (CINAHL) via EBSCO. All Ovid searches will be run simultaneously as a multi-file search. Duplicates will be removed using Ovid deduplication for multi-file searches, followed by manual deduplication in Endnote. The search strategy will be comprised of both controlled vocabulary, such as the National Library of Medicine's MeSH (Medical Subject Headings), and keywords. The main search concept will be post-COVID-19 condition or synonyms, such as long COVID or post-acute sequelae of SARS-COV-2. Parts of

the strategy will be adapted from CADTH's COVID-19 search string.²⁷ A supplemental search of the Philosopher's Index via Ovid will be conducted for ethics literature. Detailed search strategies are provided in Appendix 1.

Retrieval will be limited to documents published from January 1, 2019 onward and in the English or French language. Where possible, retrieval will be limited to the human population. No filters will be applied to limit the retrieval by study type. Comments, newspaper articles, editorials, and letters will be excluded.

Table 1: Selection Criteria

Criteria	Description
Population	Patients of all ages with post-COVID-19 condition (i.e., long COVID, 12 weeks after initial infection)
Concept	Any approaches related to clinical classification and clinical interventions, including preventive measures, screening and diagnostic approaches, treatments, therapies, and rehabilitation, for post-COVID-19 condition.
Context	Any contextual setting
Study design(s)	<p>Comparative and non-comparative study designs, economic evaluation, protocols, and clinical guidelines, including:</p> <ul style="list-style-type: none"> • Randomized controlled trials • Controlled clinical trials • Cohort studies • Case-control studies • Cross-sectional studies • Single-arm before-and-after studies • Single-arm interrupted time series studies • Case reports • Case series • Systematic reviews^a • Studies of any design available as preprints, conference abstracts, presentations, or thesis documents • Economic evaluation • Guidelines • Qualitative publications • Ethical analyses <p>Exclusions:</p> <ul style="list-style-type: none"> • Consensus statements • Editorials, letters, and commentaries • Narrative reviews • Animal and in vitro studies
Time frame	2019 to present

^aThese may be quantitative, qualitative, or mixed methods, and must include a research question; a list of the sources searched and a reproducible search strategy; clear inclusion and exclusion criteria; a description of methods for study selection; information about how the data were synthesized. Though appraisal of the quality of the included studies is often recommended for systematic reviews, we did not consider this to be required for the purpose of the present scoping review.²⁵

The following clinical trial registries will be searched: the US National Institutes of Health's Clinicaltrials.gov, WHO's International Clinical Trials Registry Platform (ICTRP) search portal, Health Canada's Clinical Trials Database, and the European Union Clinical Trials Register. Preprints (preliminary reports that have not been peer reviewed) will be searched through the Europe PMC database.

Grey literature (literature that is not commercially published) will be identified by searching sources listed in relevant sections of the *Grey Matters: A Practical Tool For Searching Health-Related Grey Literature checklist*,²⁸ and the *CADTH COVID-19 Grey Literature Resources*²⁹ which includes the websites of regulatory agencies, HTA agencies, clinical guideline repositories, systematic review repositories, patient-related groups, and professional associations. Google will be used to search for additional internet-based materials. These searches will be supplemented by reviewing bibliographies of key papers and through contacts with experts (by email), as appropriate. See Appendix 1 for more information on the grey literature search strategy.

Regular alerts will update the database literature searches until the publication of the final report. The grey literature, preprints, and clinical trial registries searches will also be updated before the completion of the stakeholder feedback period.

Screening and Selecting Studies for Inclusion

Inclusion criteria

Studies meeting the eligibility criteria outlined in Table 1 will be included.

Exclusion criteria

Articles will be excluded if they do not meet the selection criteria outlined in Table 1, they are duplicate publications, or are published before 2019. If there are multiple publications fulfilling the inclusion criteria from the same study (i.e., same population), they will all be included, and data will be extracted and discussed as 1 single study. While there is evidence that suggests excluding non-English publications from evidence synthesis does not bias conclusions,^{30,31} publications in French will also be included as CADTH has the capacity to reviewing in both languages. A list of excluded studies, with reasons for exclusion after full-text review, will be provided.

Study Selection

The systematic review management software DistillerSR (Evidence Partners, Ottawa, Canada) will be used for study selection. Pilot testing will be conducted for the first 50 references identified in the literature search to ensure the eligibility criteria are interpreted similarly by the reviewers. Two reviewers will then independently screen titles and abstracts of all citations retrieved from the literature search (i.e., academic database and grey literature searches). Full texts articles that are judged to be potentially relevant by at least 1 reviewer will be retrieved and independently assessed for possible inclusion based on the pre-determined selection outlined in Table 1 (i.e., if 1 reviewer believes the citation should be screened at the full-text level, it will move forward to the next level of screening; no conflict resolution will be performed). Two reviewers will independently examine all full-text articles, and consensus will be required for inclusion in the review. Discrepancies between reviewers will be resolved by discussion between the reviewers or by a third reviewer, in the event of uncertainty about whether a record meets the inclusion criteria. The reasons for exclusion of articles excluded

at the full-text level will be documented. A list of studies selected for inclusion in the scoping review will be posted to the CADTH website for stakeholder review for 10 business days, and feedback and any additional studies identified for potential inclusion will be reviewed following the above process.

Studies identified through search alerts meeting the selection criteria of the review will be incorporated into the synthesis if they are identified before the end of the stakeholder feedback period of the review.

Charting (Data Extraction)

Charting aims to synthesize and interpret qualitative or quantitative studies by “*sifting, charting and sorting materials according to key issues and themes*” (p. 26).³² Charting will be performed by 1 reviewer and independently checked for accuracy by a second reviewer. The second reviewer will also check for any relevant data that might have been missed by the first reviewer to ensure all relevant data from each included study are charted. Before charting begins, the reviewers will independently test the data extraction form on a sample of 5 included studies and meet to review discrepancies. The form will be edited and further pilot exercises will be run if needed, until the reviewers are ready to proceed with the full data charting. Disagreements will be resolved through discussion until consensus is reached or through adjudication by a third reviewer, if necessary. Relevant information will be charted, including the following:

- study characteristics (e.g., first author’s name, publication year, country where the study was conducted,) and methodology (e.g., study design and objectives, methods to confirm COVID-19 infection))
- population (e.g., number of participants, age, sex and/or gender, race, vaccination status)
- concept (any concepts related to clinical classification, prevention, prognostic factors and screening methods, diagnosis, and treatment of post–COVID-19 condition)
- context (any contextual settings including but not limited to clinical, community, care home, and rural).

Data will be charted for all relevant concepts and contexts for this study at any duration of follow-up. Specific population characteristics following the PROGRESS PLUS framework (i.e., place of residence, race/ethnicity/culture/language, occupation, gender/sex, religion, education, socioeconomic status, social capital, and other characteristics that may be associated with disadvantage) will be charted to identify characteristics that stratify health opportunities and outcomes related to health equity and equity considerations.³³

If relevant data are missing from or conflicting in the included studies, attempts will be made to contact the corresponding authors of these studies to obtain missing information or to clarify conflicting information. If no response is received from study authors to a request for clarification of discrepant data reporting, all results will be reported in the scoping review. Data charting will be an iterative process, whereby additional items may be added as the research team learns about the research base and recognizes new items of importance.

Data Analysis and Synthesis

Descriptive Synthesis

Descriptive mapping will be performed, including the presentation of study characteristics and findings within summary tables, visual displays, and in the main text. Findings will be summarized within and across studies (by research questions), including classification, preventive measures, screening and diagnostic approaches, treatments, therapies, and rehabilitation of post-COVID-19 condition. Study characteristics will be extracted and presented in tables as suggested by the JBI manual.²⁰ Specifically, other tables will be developed to present the answers to the research questions. The results also will be presented in diagrams, such as bar charts or other visual displays, to demonstrate the distributions of the publications across different topics, disciplines, countries, and other categories. The visualization may help to identify potential gaps in post-COVID-19 condition research. The gaps can be identified through the examination of the distributions of studies in clinical specialties, organ systems, levels of care, and other characteristics. Findings related to evidence gaps will also be shared with the CADTH condition-level review stakeholder panel who will help with the categorization of evidence. The stakeholder panel will include representation from cross-jurisdictional decision-makers, clinicians actively working in the area of post-COVID-19 condition, and patient representatives.

Opportunities for Stakeholder Feedback

All stakeholders will be given the opportunity to provide feedback on the draft report. Unpublished data identified as part of the feedback process may only be included if the source of data is in the public domain.

Knowledge Mobilization

In addition to the scoping review report, additional knowledge mobilization activities to disseminate the findings of this scoping review and the larger condition-level review will be conducted and could include relevant educational outreach and related activities. Outreach of this project and the condition-level review will be made by CADTH's Knowledge Mobilization and Implementation Support team to meet the needs of key stakeholders, such as jurisdictional bodies, health care providers, and other users of health evidence.

Protocol Amendments

If amendments are required at any time during the study, reasons for changes will be recorded in a study file and subsequently reported within the final study report. If necessary, a rescreening of the previous literature search or an updated literature search will be performed to capture additional data, according to the amendments.

Updates to the online registration will be made accordingly (i.e., NCCMT and OSF).²³

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Appendix 1: Literature Search Strategy

Note that this appendix has not been copy-edited.

Overview of Ovid Multi-Database and EBSCO CINAHL Bibliographic Database Searches

Interface: Ovid and EBSCOhost

Databases

- MEDLINE All (1946-present) via Ovid
- Embase (1974-present) via Ovid
- APA PsycInfo (1806-present) via Ovid
- Cochrane Central Register of Controlled Trials via Ovid
- Cumulative Index to Nursing and Allied Health Literature (CINAHL) via EBSCO
- Note: Subject headings and search fields have been customized for each database. Duplicates were removed using Ovid deduplication for multi-file searches, followed by manual deduplication in Endnote.

Alerts: Monthly search updates until project completion

Search filters applied: No filters were applied to limit the retrieval by study type.

Limits

- Publication date limit: 2019-present
- Humans
- Language limit: English or French

Table 2: Ovid Syntax Guide

Syntax	Description
/	At the end of a phrase, searches the phrase as a subject heading
MeSH	Medical Subject Heading
.fs	Floating subheading
exp	Explode a subject heading
*	Before a word, indicates that the marked subject heading is a primary topic; or, after a word, a truncation symbol (wildcard) to retrieve plurals or varying endings
#	Truncation symbol for 1 character
?	Truncation symbol for 1 or no characters only
adj#	Requires terms to be adjacent to each other within # number of words (in any order)
.ti	Title
.ot	Original title
.ab	Abstract
.hw	Heading word; usually includes subject headings and controlled vocabulary
.kf	Author keyword heading word (MEDLINE, Embase)

Syntax	Description
.id	Author keyword (PsycInfo)
.dq	Candidate term word (Embase)
.pt	Publication type
.yr	Publication year
medall	Ovid database code: MEDLINE All, 1946 to present, updated daily
oemezd	Ovid database code; Embase, 1974 to present, updated daily
cctr	Ovid database code; Cochrane Central Register of Controlled Trials
psyh	Ovid database code; APA PsycInfo for the years 2019 and 2020-present.

Ovid Multi-Database Strategy – Medline, Embase, Cochrane Central, and PsycInfo

1. (long COVID* or long coronavirus*).ti,ab,kf.
2. ((chronic or post) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj2 (sequela* or syndrome* or disorder* or condition* or symptom*)).ti,ab,kf.
3. ((post acute or postacute or post viral or postviral or post virus* or postvirus* or long duration or long last or long lasting or longstanding or long standing) adj3 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
4. (late sequela* adj2 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
5. ((long-term or longterm) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
6. PASC.ti,kf.
7. ((postcovid* or post covid* or postcoronavirus* or post coronavirus* or post SARS-COV-2 or postSARS-COV-2 or post SARS-COV2 or postSARS-COV2 or post SARSCOV-2 or post SARSCOV-2) adj3 (sequela* or syndrome* or disorder* or illness* or condition* or symptom* or prognos* or followup* or follow up*)).ti,ab,kf.
8. (post-covid* adj5 (care or aftercare*) adj5 (centre* or centre or clinic*)).ti,ab,kf.
9. or/1-8 [Medline CCTR set 1 Main Long Covid Terms]
10. (((post acute or postacute or sub-acute or subacute or chronic) adj sequela*) or PASC).ti,ab,kf.
11. (long haul* or longhaul*).ti,ab,kf.
12. ((post-intensive care or postintensive care or post-ICU) adj syndrome*).ti,ab,kf.
13. ((persist* or long* or residual or prolonged) adj8 ((olfactory or chemosensor*) adj (disorder* or dysfunction*))).ti,ab,kf.
14. or/10-13 [Medline CCTR set 2 Post Acute Subtype terms to AND with COVID]
15. COVID-19/ or exp COVID-19 Testing/ or COVID-19 Vaccines/ or SARS-CoV-2/
16. (coronavirus/ or betacoronavirus/ or coronavirus infections/) and (disease outbreaks/ or epidemics/ or pandemics/)
17. (nCoV* or 2019nCoV or 19nCoV or COVID19* or COVID or SARS-COV-2 or SARSCOV-2 or SARS-COV2 or SARSCOV2 or SARS coronavirus 2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,kf,nm,ot,ox,rx,px.
18. ((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus* or corona virus* or betacoronavirus* or

- CoV or HCoV)).ti,ab,kf,ot.
19. (longCOVID* or postCOVID* or postcoronavirus* or postSARS*).ti,ab,kf,ot.
 20. ((coronavirus* or corona virus* or betacoronavirus*) adj3 (pandemic* or epidemic* or outbreak* or crisis)).ti,ab,kf,ot.
 21. ((Wuhan or Hubei) adj5 pneumonia).ti,ab,kf,ot.
 22. or/15-21 [Medline CCTR set 3 CADTH Covid-19 filter]
 23. (recovery adj2 (clinic or clinics or centre or centre or centres or centers or program*)).ti,ab,kf.
 24. (post* adj3 rehabilitation adj2 (clinic or clinics or centre or centre or centres or centers or program*)).ti,ab,kf.
 25. or/23-24 [Medline CCTR set 4 Post Covid Recovery Clinics]
 26. (post adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj3 infection* adj8 (chronic* or persist* or residual or prolonged or non-recover* or nonrecover* or recover* or rehabilitat* or month or months or year or years or sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,kf.
 27. ((chronic or post) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj3 (rehabilitat* or recover* or fatigue or function*)).ti,ab,kf.
 28. ((chronic* or persist* or residual or prolonged or non-recover* or nonrecover*) adj2 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
 29. ((chronic* or persist* or residual or prolonged or non-recover* or nonrecover*) adj2 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj5 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,kf.
 30. ((long-term or longterm) adj (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
 31. ((post acute or postacute or post viral or postviral or post virus* or postvirus* or long duration or long last or long lasting or longstanding or long standing or late-onset or (illness adj2 duration)) adj3 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
 32. ((survivor* or survived or discharg* or postdischarg* or post infect* or postinfect*) adj3 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
 33. ((survivor* or survived or discharg* or postdischarg* or post infect* or postinfect*) adj3 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj5 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,kf.
 34. or/26-33 [Medline CCTR set 5 Top Up set]
 35. 14 and 22

36. 22 and 25
37. 9 or 34 or 35 or 36
38. 37 use medall
39. 37 use cctr
40. (long COVID* or long coronavirus*).ti,ab,kf.
41. ((chronic or post) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj2 (sequela* or syndrome* or disorder* or condition* or symptom*)).ti,ab,kf.
42. ((post acute or postacute or post viral or postviral or post virus* or postvirus* or long duration or long last or long lasting or longstanding or long standing) adj3 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
43. (late sequela* adj2 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
44. ((long-term or longterm) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
45. PASC.ti,kf.
46. ((postcovid* or post covid* or postcoronavirus* or post coronavirus* or post SARS-COV-2 or postSARS-COV-2 or post SARS-COV2 or postSARS-COV2 or post SARSCOV-2 or post SARSCOV-2) adj3 (sequela* or syndrome* or disorder* or illness* or condition* or symptom* or prognos* or followup* or follow up*)).ti,ab,kf.
47. (post-covid* adj5 (care or aftercare*) adj5 (centre* or centre or clinic*)).ti,ab,kf.
48. or/40-47 [Embase set 1 Main Long Covid terms]
49. (((post acute or postacute or sub-acute or subacute or chronic) adj sequela*) or PASC).ti,ab,kf.
50. (long haul* or longhaul*).ti,ab,kf.
51. ((post-intensive care or postintensive care or post-ICU) adj syndrome*).ti,ab,kf.
52. ((persist* or long* or residual or prolonged) adj8 ((olfactory or chemosensor*) adj (disorder* or dysfunction*))).ti,ab,kf.
53. or/49-52 [Embase set 2 Post Acute Subtype terms to AND with COVID]
54. sars-related coronavirus/
55. (coronavirinae/ or betacoronavirus/ or coronavirus infection/) and (epidemic/ or pandemic/)
56. (nCoV* or 2019nCoV or 19nCoV or COVID19* or COVID or SARS-COV-2 or SARSCOV-2 or SARS-COV2 or SARSCOV2 or SARS coronavirus 2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,kf,hw,ot.
57. ((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus* or corona virus* or betacoronavirus* or CoV or HCoV)).ti,ab,kf,hw,ot.
58. (longCOVID* or postCOVID* or postcoronavirus* or postSARS*).ti,ab,kf,hw,ot.
59. ((coronavirus* or corona virus* or betacoronavirus*) adj3 (pandemic* or epidemic* or outbreak* or crisis)).ti,ab,kf,ot.
60. ((Wuhan or Hubei) adj5 pneumonia).ti,ab,kf,ot.
61. or/54-60 [Embase set 3 CADTH Covid Filter]
62. (recovery adj2 (clinic or clinics or centre or centre or centres or centers or program*)).ti,ab,kf.

63. (post* adj3 rehabilitation adj2 (clinic or clinics or centre or centre or centres or centers or program*)).ti,ab,kf.
64. or/62-63 [Embase set 4 Post Covid Recovery Clinics to AND with Covid set 3]
65. (post adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj3 infection* adj8 (chronic* or persist* or residual or prolonged or non-recover* or nonrecover* or recover* or rehabilitat* or month or months or year or years or sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,kf.
66. ((chronic or post) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj3 (rehabilitat* or recover* or fatigue or function*)).ti,ab,kf.
67. ((chronic* or persist* or residual or prolonged or non-recover* or nonrecover*) adj2 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
68. ((chronic* or persist* or residual or prolonged or non-recover* or nonrecover*) adj2 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj5 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,kf.
69. ((long-term or longterm) adj (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
70. ((post acute or postacute or post viral or postviral or post virus* or postvirus* or long duration or long last or long lasting or longstanding or long standing or late-onset or (illness adj2 duration)) adj3 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
71. ((survivor* or survived or discharg* or postdischarg* or post infect* or postinfect*) adj3 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,kf.
72. ((survivor* or survived or discharg* or postdischarg* or post infect* or postinfect*) adj3 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj5 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,kf.
73. or/65-72 [Embase set 5 Top Up set]
74. 53 and 61
75. 61 and 64
76. 48 or 73 or 74 or 75
77. 76 use oemezdz
78. (long COVID* or long coronavirus*).ti,ab,id.
79. ((chronic or post) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj2 (sequela* or syndrome* or disorder* or condition* or symptom*)).ti,ab,id.

80. ((post acute or postacute or post viral or postviral or post virus* or postvirus* or long duration or long last or long lasting or longstanding or long standing) adj3 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,id.
81. (late sequela* adj2 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,id.
82. ((long-term or longterm) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,id.
83. PASC.ti,id.
84. ((postcovid* or post covid* or postcoronavirus* or post coronavirus* or post SARS-COV-2 or postSARS-COV-2 or post SARS-COV2 or postSARS-COV2 or post SARSCOV-2 or post SARSCOV-2) adj3 (sequela* or syndrome* or disorder* or illness* or condition* or symptom* or prognos* or followup* or follow up*)).ti,ab,id.
85. (post-covid* adj5 (care or aftercare*) adj5 (centre* or centre or clinic*)).ti,ab,id.
86. or/78-85 [PsyInfo set 1 Main Long Covid terms]
87. (((post acute or postacute or sub-acute or subacute or chronic) adj sequela*) or PASC).ti,ab,id.
88. (long haul* or longhaul*).ti,ab,id.
89. ((post-intensive care or postintensive care or post-ICU) adj syndrome*).ti,ab,id.
90. ((persist* or long* or residual or prolonged) adj8 ((olfactory or chemosensor*) adj (disorder* or dysfunction*))).ti,ab,id.
91. or/87-90 [PsyInfo set 2 Post Acute Subtype terms to AND with COVID]
92. COVID-19/ or exp COVID-19 Testing/ or COVID-19 Vaccines/ or SARS-CoV-2/
93. (coronavirus/ or betacoronavirus/ or coronavirus infections/) and (disease outbreaks/ or epidemics/ or pandemics/)
94. (nCoV* or 2019nCoV or 19nCoV or COVID19* or COVID or SARS-COV-2 or SARSCOV-2 or SARS-COV2 or SARSCOV2 or SARS coronavirus 2 or Severe Acute Respiratory Syndrome Coronavirus 2 or Severe Acute Respiratory Syndrome Corona Virus 2).ti,ab,id,ot.
95. ((new or novel or "19" or "2019" or Wuhan or Hubei or China or Chinese) adj3 (coronavirus* or corona virus* or betacoronavirus* or CoV or HCoV)).ti,ab,id.
96. (longCOVID* or postCOVID* or postcoronavirus* or postSARS*).ti,ab,id.
97. ((coronavirus* or corona virus* or betacoronavirus*) adj3 (pandemic* or epidemic* or outbreak* or crisis)).ti,ab,id.
98. ((Wuhan or Hubei) adj5 pneumonia).ti,ab,id.
99. or/92-98 [PsyInfo set 3 CADTH Covid Filter]
100. (recovery adj2 (clinic or clinics or centre or centre or centres or centers or program*)).ti,ab,id.
101. (post* adj3 rehabilitation adj2 (clinic or clinics or centre or centre or centres or centers or program*)).ti,ab,id.
102. or/100-101 [PsyInfo set 4 Post Covid Recovery Clinics to AND with Covid]
103. (post adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj3 infection* adj8 (chronic* or persist* or residual or prolonged or non-recover* or nonrecover* or recover* or rehabilitat* or month or months or year or years or sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,id.

104. ((chronic or post) adj (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj3 (rehabilitat* or recover* or fatigue or function*)).ti,ab,id.
105. ((chronic* or persist* or residual or prolonged or non-recover* or nonrecover*) adj2 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,id.
106. ((chronic* or persist* or residual or prolonged or non-recover* or nonrecover*) adj2 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj5 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,id.
107. ((long-term or longterm) adj (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,id.
108. ((post acute or postacute or post viral or postviral or post virus* or postvirus* or long duration or long last or long lasting or longstanding or long standing or late-onset or (illness adj2 duration)) adj3 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,id.
109. ((survivor* or survived or discharg* or postdischarg* or post infect* or postinfect*) adj3 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*) adj5 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2)).ti,ab,id.
110. ((survivor* or survived or discharg* or postdischarg* or post infect* or postinfect*) adj3 (COVID* or coronavirus* or corona virus* or SARS-COV-2 or SARS-COV2 or SARSCOV-2 or nCoV* or 2019nCoV or 19nCoV or SARSCOV2) adj5 (sequela* or syndrome* or disorder* or condition* or symptom* or consequence* or outcome* or clinical outcome* or aftercare* or after-care* or issue* or complication* or following or follow-up or followup or function*)).ti,ab,id.
111. or/103-110 [PsycInfo set 5 Top Up set]
112. 91 and 99
113. 99 and 102
114. 86 or 111 or 112 or 113
115. 114 use psyh
116. exp animals/
117. exp animal experimentation/ or exp animal experiment/
118. exp models animal/
119. nonhuman/
120. exp vertebrate/ or exp vertebrates/

121. animal.po.
122. or/116-121
123. exp humans/
124. exp human experimentation/ or exp human experiment/
125. human.po.
126. or/123-125
127. 122 not 126
128. (comment or newspaper article or editorial or letter or note).pt.
129. 38 not 127
130. 129 not 128
131. limit 130 to (english or french)
132. limit 131 to yr = "2019 -Current" [Medline results with limits]
133. 39 not 127
134. 133 not 128
135. limit 134 to yr = "2019 -Current" [CCTR with limits, no language limit available]
136. 77 not 127
137. 136 not 128
138. limit 137 to (english or french)
139. limit 138 to yr = "2019 -Current" [Embase with limits]
140. 115 not 127
141. 140 not 128
142. limit 141 to (english or french)
143. limit 142 to yr = "2019 -Current" [PsycInfo with limits]
144. 132 or 135 or 139 or 143 [All database results with limits, combined]
145. remove duplicates from 144

Table 3: EBSCO Syntax Guide

Syntax	Description
TI	Title
AB	Abstract
MH	Medical Subject Heading
PT	Publication type
*	A truncation symbol (wildcard) to retrieve plurals or varying endings
N#	Near operator: requires terms to be adjacent to each other with # number of words, in any order
W#	Within operator: requires terms to be adjacent to each other within # number of words, in the order entered

EBSCO Strategy – Cumulative Index to Nursing and Allied Health Literature (CINAHL)

The CINAHL search was translated from the Ovid Medline search with the assistance of the Polygot Search Translator.³⁴

S1. ((TI "long COVID*" OR AB "long COVID*") OR (TI "long coronavirus*" OR AB "long coronavirus*"))

S2. (((TI chronic OR AB chronic) OR (TI post OR AB post)) W1 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)) N2 ((TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI condition* OR AB condition*) OR (TI symptom* OR AB symptom*)))

S3. (((TI "post acute" OR AB "post acute") OR (TI postacute OR AB postacute) OR (TI "post viral" OR AB "post viral") OR (TI postviral OR AB postviral) OR (TI "post virus*" OR AB "post virus*") OR (TI postvirus* OR AB postvirus*) OR (TI "long duration" OR AB "long duration") OR (TI "long last" OR AB "long last") OR (TI "long lasting" OR AB "long lasting") OR (TI longstanding OR AB longstanding) OR (TI "long standing" OR AB "long standing")) N3 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)))

S4. ((TI "late sequela*" OR AB "late sequela*") N2 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)))

S5. (((TI "long term" OR AB "long term") OR (TI longterm OR AB longterm)) W1 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)))

S6. TI PASC

S7. (((TI postcovid* OR AB postcovid*) OR (TI "post covid*" OR AB "post covid*") OR (TI postcoronavirus* OR AB postcoronavirus*) OR (TI "post coronavirus*" OR AB "post coronavirus*") OR (TI "post SARS-COV-2" OR AB "post SARS-COV-2") OR (TI postSARS-COV-2 OR AB postSARS-COV-2) OR (TI "post SARS-COV2" OR AB "post SARS-COV2") OR (TI postSARS-COV2 OR AB postSARS-COV2) OR (TI "post SARSCOV-2" OR AB "post SARSCOV-2") OR (TI "post SARSCOV-2" OR AB "post SARSCOV-2")) N3 ((TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI illness* OR AB illness*) OR (TI condition* OR AB condition*))

OR (TI symptom* OR AB symptom*) OR (TI prognos* OR AB prognos*) OR (TI followup* OR AB followup*) OR (TI "follow up*" OR AB "follow up*"))

S8. ((TI post-covid* OR AB post-covid*) N5 ((TI care OR AB care) OR (TI aftercare* OR AB aftercare*)) N5 ((TI centre* OR AB centre*) OR (TI centre OR AB centre) OR (TI clinic* OR AB clinic*)))

S9. S1 OR S2 OR S3 OR S4 OR S5 OR S6 OR S7 OR S8

S10. (((TI "post acute" OR AB "post acute") OR (TI postacute OR AB postacute) OR (TI sub-acute OR AB sub-acute) OR (TI subacute OR AB subacute) OR (TI chronic OR AB chronic)) W1 (TI sequela* OR AB sequela*)) OR (TI PASC OR AB PASC)

S11. ((TI "long haul*" OR AB "long haul*") OR (TI longhaul* OR AB longhaul*))

S12. (((TI "post-intensive care" OR AB "post-intensive care") OR (TI "postintensive care" OR AB "postintensive care") OR (TI post-ICU OR AB post-ICU)) W1 (TI syndrome* OR AB syndrome*))

S13. (((TI persist* OR AB persist*) OR (TI long* OR AB long*) OR (TI residual OR AB residual) OR (TI prolonged OR AB prolonged)) N8 (((TI olfactory OR AB olfactory) OR (TI chemosensor* OR AB chemosensor*)) W1 ((TI disorder* OR AB disorder*) OR (TI dysfunction* OR AB dysfunction*))))

S14. S10 OR S11 OR S12 OR S13

S15. (MH COVID-19) OR (MH "COVID-19 Testing" +) OR (MH "COVID-19 Vaccines") OR (MH SARS-CoV-2)

S16. ((MH coronavirus) OR (MH betacoronavirus) OR (MH "coronavirus infections")) AND ((MH "disease outbreaks") OR (MH epidemics) OR (MH pandemics))

S17. ((TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI COVID19* OR AB COVID19*) OR (TI COVID OR AB COVID) OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV2 OR AB SARSCOV2) OR (TI "SARS coronavirus 2" OR AB "SARS coronavirus 2") OR (TI "Severe Acute Respiratory Syndrome Coronavirus 2" OR AB "Severe Acute Respiratory Syndrome Coronavirus 2") OR (TI "Severe Acute Respiratory Syndrome Corona Virus 2" OR AB "Severe Acute Respiratory Syndrome Corona Virus 2"))

S18. (((TI new OR AB new) OR (TI novel OR AB novel) OR (TI 19 OR AB 19) OR (TI 2019 OR AB 2019) OR (TI Wuhan OR AB Wuhan) OR (TI Hubei OR AB Hubei) OR (TI China OR AB China) OR (TI Chinese OR AB Chinese)) N3 ((TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI betacoronavirus* OR AB betacoronavirus*) OR (TI CoV OR AB CoV) OR (TI HCoV OR AB HCoV)))

S19. ((TI longCOVID* OR AB longCOVID*) OR (TI postCOVID* OR AB postCOVID*) OR (TI postcoronavirus* OR AB postcoronavirus*) OR (TI postSARS* OR AB postSARS*))

S20. (((TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI betacoronavirus* OR AB betacoronavirus*)) N3 ((TI pandemic* OR AB pandemic*) OR (TI epidemic* OR AB epidemic*) OR (TI outbreak* OR AB outbreak*) OR (TI crisis OR AB crisis)))

S21. (((TI Wuhan OR AB Wuhan) OR (TI Hubei OR AB Hubei)) N5 (TI pneumonia OR AB pneumonia))

S22. S15 OR S16 OR S17 OR S18 OR S19 OR S20 OR S21

S23. ((TI recovery OR AB recovery) N2 ((TI clinic OR AB clinic) OR (TI clinics OR AB clinics) OR (TI centre OR AB centre) OR (TI centre OR AB centre) OR (TI centres OR AB centres) OR (TI centers OR AB centers) OR (TI program* OR AB program*)))

S24. ((TI post* OR AB post*) N3 (TI rehabilitation OR AB rehabilitation) N2 ((TI clinic OR AB clinic) OR (TI clinics OR AB clinics) OR (TI centre OR AB centre) OR (TI centre OR AB centre) OR (TI centres OR AB centres) OR (TI centers OR AB centers) OR (TI program* OR AB program*)))

S25. S23 OR S24

S26. ((TI post OR AB post) W1 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)) N3 (TI infection* OR AB infection*) N8 ((TI chronic* OR AB chronic*) OR (TI persist* OR AB persist*) OR (TI residual OR AB residual) OR (TI prolonged OR AB prolonged) OR (TI non-recover* OR AB non-recover*) OR (TI nonrecover* OR AB nonrecover*) OR (TI recover* OR AB recover*) OR (TI rehabilitat* OR AB rehabilitat*) OR (TI month OR AB month) OR (TI months OR AB months) OR (TI year OR AB year) OR (TI years OR AB years) OR (TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI condition* OR AB condition*) OR (TI symptom* OR AB symptom*) OR (TI consequence* OR AB consequence*) OR (TI outcome* OR AB outcome*) OR (TI "clinical outcome*" OR AB "clinical outcome*") OR (TI aftercare* OR AB aftercare*) OR (TI after-care* OR AB after-care*) OR (TI issue* OR AB issue*) OR (TI complication* OR AB complication*) OR (TI following OR AB following) OR (TI follow-up OR AB follow-up) OR (TI followup OR AB followup) OR (TI function* OR AB function*))

S27. (((TI chronic OR AB chronic) OR (TI post OR AB post)) W1 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)) N3 ((TI rehabilitat* OR AB rehabilitat*) OR (TI recover* OR AB recover*) OR (TI fatigue OR AB fatigue) OR (TI function* OR AB function*))

S28. (((TI chronic* OR AB chronic*) OR (TI persist* OR AB persist*) OR (TI residual OR AB residual) OR (TI prolonged OR AB prolonged) OR (TI non-recover* OR AB non-recover*) OR (TI nonrecover* OR AB nonrecover*)) N2 ((TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI condition* OR AB condition*) OR (TI symptom* OR AB symptom*) OR (TI consequence* OR AB consequence*) OR (TI outcome* OR AB outcome*) OR (TI "clinical outcome*" OR AB "clinical outcome*") OR (TI aftercare* OR AB aftercare*) OR (TI after-care* OR AB after-care*) OR (TI issue* OR AB issue*) OR (TI complication* OR AB complication*) OR (TI following OR AB following) OR (TI follow-up OR AB follow-up) OR (TI followup OR AB followup) OR (TI function* OR AB function*)) N5 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2))

S29. (((TI chronic* OR AB chronic*) OR (TI persist* OR AB persist*) OR (TI residual OR AB residual) OR (TI prolonged OR AB prolonged) OR (TI non-recover* OR AB non-recover*) OR (TI nonrecover* OR AB nonrecover*)) N2 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)) N5 ((TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI condition* OR AB condition*) OR (TI symptom* OR AB symptom*) OR (TI consequence* OR AB consequence*) OR (TI outcome* OR AB outcome*) OR (TI "clinical outcome*" OR AB "clinical outcome*") OR (TI aftercare* OR AB aftercare*) OR (TI after-care* OR AB after-care*) OR (TI issue* OR AB issue*) OR (TI complication* OR AB complication*) OR (TI following OR AB following) OR (TI follow-up OR AB follow-up) OR (TI followup OR AB followup) OR (TI function* OR AB function*))

S30. (((TI long-term OR AB long-term) OR (TI longterm OR AB longterm)) W1 ((TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI condition* OR AB condition*) OR (TI symptom* OR AB symptom*) OR (TI consequence* OR AB consequence*) OR (TI outcome* OR AB outcome*) OR (TI "clinical outcome*" OR AB "clinical outcome*") OR (TI aftercare* OR AB aftercare*) OR (TI after-care* OR AB after-care*) OR (TI issue* OR AB issue*) OR (TI complication* OR AB complication*) OR (TI following OR AB following) OR (TI follow-up OR AB follow-up) OR (TI followup OR AB followup) OR (TI function* OR AB function*)) N5 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*"))

OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)))

S31. (((TI "post acute" OR AB "post acute") OR (TI postacute OR AB postacute) OR (TI "post viral" OR AB "post viral") OR (TI postviral OR AB postviral) OR (TI "post virus*" OR AB "post virus*") OR (TI postvirus* OR AB postvirus*) OR (TI "long duration" OR AB "long duration") OR (TI "long last" OR AB "long last") OR (TI "long lasting" OR AB "long lasting") OR (TI longstanding OR AB longstanding) OR (TI "long standing" OR AB "long standing") OR (TI late-onset OR AB late-onset) OR ((TI illness OR AB illness) N2 (TI duration OR AB duration))) N3 ((TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI condition* OR AB condition*) OR (TI symptom* OR AB symptom*) OR (TI consequence* OR AB consequence*) OR (TI outcome* OR AB outcome*) OR (TI "clinical outcome*" OR AB "clinical outcome*") OR (TI aftercare* OR AB aftercare*) OR (TI after-care* OR AB after-care*) OR (TI issue* OR AB issue*) OR (TI complication* OR AB complication*) OR (TI following OR AB following) OR (TI follow-up OR AB follow-up) OR (TI followup OR AB followup) OR (TI function* OR AB function*)) N5 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)))

S32. (((TI survivor* OR AB survivor*) OR (TI survived OR AB survived) OR (TI discharg* OR AB discharg*) OR (TI postdischarg* OR AB postdischarg*) OR (TI "post infect*" OR AB "post infect*") OR (TI postinfect* OR AB postinfect*)) N3 ((TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI condition* OR AB condition*) OR (TI symptom* OR AB symptom*) OR (TI consequence* OR AB consequence*) OR (TI outcome* OR AB outcome*) OR (TI "clinical outcome*" OR AB "clinical outcome*") OR (TI aftercare* OR AB aftercare*) OR (TI after-care* OR AB after-care*) OR (TI issue* OR AB issue*) OR (TI complication* OR AB complication*) OR (TI following OR AB following) OR (TI follow-up OR AB follow-up) OR (TI followup OR AB followup) OR (TI function* OR AB function*)) N5 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)))

S33. (((TI survivor* OR AB survivor*) OR (TI survived OR AB survived) OR (TI discharg* OR AB discharg*) OR (TI postdischarg* OR AB postdischarg*) OR (TI "post infect*" OR AB "post infect*") OR (TI postinfect* OR AB postinfect*)) N3 ((TI COVID* OR AB COVID*) OR (TI coronavirus* OR AB coronavirus*) OR (TI "corona virus*" OR AB "corona virus*") OR (TI SARS-COV-2 OR AB SARS-COV-2) OR (TI SARS-COV2 OR AB SARS-COV2) OR (TI SARSCOV-2 OR AB SARSCOV-2) OR (TI nCoV* OR AB nCoV*) OR (TI 2019nCoV OR AB 2019nCoV) OR (TI 19nCoV OR AB 19nCoV) OR (TI SARSCOV2 OR AB SARSCOV2)) N5 ((TI sequela* OR AB sequela*) OR (TI syndrome* OR AB syndrome*) OR (TI disorder* OR AB disorder*) OR (TI condition* OR AB condition*) OR (TI symptom* OR AB symptom*) OR (TI consequence* OR AB consequence*) OR (TI outcome* OR AB outcome*) OR (TI "clinical outcome*" OR AB "clinical outcome*") OR (TI aftercare* OR AB aftercare*) OR (TI after-care* OR AB after-care*) OR (TI issue* OR AB issue*) OR (TI complication* OR AB complication*) OR (TI following OR AB following) OR (TI follow-up OR AB follow-up) OR (TI followup OR AB followup) OR (TI function* OR AB function*))

S34. S26 OR S27 OR S28 OR S29 OR S30 OR S31 OR S32 OR S33

S35. S14 AND S22

S36. S22 AND S25

S37. S9 OR S34 OR S35 OR S36

S38. (PT "commentary") or (PT "editorial") or (PT "letter") or (PT "letter to the editor") or (PT "newspaper")

S39. S37 NOT S38

S40. Limiters: Published Date:20190101 to 20221231; Exclude MEDLINE records; Language: English, French

Other Databases

- Preprints will be searched via [EuropePMC.org](https://europepmc.org), which includes preprints from MedRxiv, bioRxiv, PsyArXiv, SSRN, and F1000 Research, among others.
- A supplemental search of the Philosopher's Index via Ovid was conducted for ethics literature, with headings and keywords translated from the Ovid Medline search.

Grey Literature

Keywords: long COVID, post acute sequelae of COVID, post-COVID syndrome, chronic COVID condition, and synonyms.

Limits: Publication years: 2019-present

Updated: Search updated before the completion of stakeholder feedback period.

Relevant websites from the following sections of the CADTH grey literature checklist [Grey Matters: A Practical Tool for Searching Health-Related Grey Literature](#) were searched:

- Health Technology Assessment Agencies
- Clinical Practice Guidelines
- Clinical Trials Registries
- Databases (free)
- Internet Search
- Plus, [CADTH COVID-19 Grey Literature Resources](#)