# COVID-19 Search on Embase 1974 to Present

Adapted for Embase on Ovid by expert searchers at Ovid, April 2020

**UPDATED:** 21 April 2020

**SCOPE:** The search is performed on **Embase 1974 to Present** (oemezd). Embase (Excerpta Medica Database) is a biomedical and pharmacological database produced by Elsevier B.V., containing more than 30 million records including articles from more than 8,500 journals published world-wide. For more details on Embase see the Ovid "Embase® Database Guide": http://ospguides.ovid.com/OSPguides/embase.htm

**YEARS:** This search is limited in lines 4 and 10 to articles with a record Date Created (DC) limitation The sensitive/broad part of the search on lines 1 through 3 is limited on line 4 to include articles with a DC value from 2019 to present. Lines 5 to 9 represent the specific part of the search and is limited to articles with a create date starting 1 December 2019, based on the date of initial reports of a virus in Wuhan.

**EMTREE:** The Emtree thesaurus from Elsevier has over 86,000 preferred terms and subheadings that identify the role of the drug, disease or device in the article. This search already uses the new Emtree Subject headings in line 8 that will be released with Emtree 2020.02.
Upon consultation with a clinical expert (nurse/epidemiologist) the search is optimized to include not only COVID-19 but other human coronaviruses with respiratory transmission (see lines 1 and 2). It is optimized to remove most of the MERS articles, except when MERS is also included with a COVID-19 or SARS-CoV-2 article; or, relevant broadly to coronaviruses and clinical care. We are thus optimizing the search for specificity to find COVID-19 and SARS-CoV-2 and human coronavirus. More information can be found about these concepts on the CDC "Coronavirus" web page https://www.cdc.gov/coronavirus/types.html and "UpToDate Coronaviruses" topic https://www.uptodate.com/contents/coronaviruses and "UpToDate COVID-19" topic COVID-19" https://www.uptodate.com/contents/coronavirus-disease-2019-covid19?search=COVID-19&source=search_result&selectedTitle=9~134&usage_type=default&display_rank=9

**KEYWORD SEARCHING:** Additionally, keyword searching is used to retrieve articles that are not indexed with
Emtree terms, such as articles in press, or articles in-process. Searching broad keywords like COVID or coronavirus finds relevant citations that could be missed otherwise, but also finds a large quantity of irrelevant results like: Covidence, Covidien, and animal coronaviruses for equine, hedgehog/erinaceus, feline, porcine, bat, bovine, avian etc.
Lines 5 through 7 therefore are specific keywords for COVID-19 or SARS-CoV-2 and identified in published articles and used as synonyms for either concept.
In lines 5 and 6, the selected keywords are searched using the (MP) 'multi-purpose' field in Embase on Ovid as follows: mp=title, abstract, heading word, drug trade name, original title, device manufacturer, drug manufacturer, device trade name, keyword, floating subheading word, candidate term word. The MP fields are typically highly relevant for keyword searching.

**SEARCH EXCLUSION TERMS:** This search carefully manually curates' irrelevant concepts resulting from both broad Emtree and broad keyword searches and adds terms to exclude in line 5 Most of these exclusions are for animal coronaviruses. Nonetheless there are a few articles in the search covering excluded terms for various search/syntax reasons.

**MANUAL CURATION FOR RELEVANT ARTICLES:** There are two manual curation methods used in this search. Line 9 includes the following. First, as part of this curation, we have continued to review the results in the NLM LitCovid search https://www.ncbi.nlm.nih.gov/research/coronavirus/ to be sure this search was not excluding concepts and results used by NLM. To date we have identified only a handful of such results not captured by this hedge on April 10th 2020.
Secondly, as part of this curation we have searched the term 'pandemic' as a keyword in newly published and unindexed articles from major journals like NEJM, JAMA, BMJ, The Lancet etc. We have identified articles where 'pandemic' was used in the title and relevant to the search but where COVID-19 or SARSCoV-2 terms were included in the title. These articles would be extremely difficult to find in a broader keyword search for 'pandemic' due to the missing specific search terms and the many other types of pandemics. These articles are thus manually curated and included into the search by their Embase Accession Number (AN)

**SEARCH OPTIMIZATION OUTCOME:** It is believed this search will help clinicians and librarians with efficiency in finding relevant research for clinical use regarding COVID-19 and SARS-CoV-2. The Ovid search is eliminating hundreds of irrelevant results and finding more relevant articles that may not be found by LitCovid or others. The search therefore is optimized to achieve greater balance of sensitivity (through lines1-5), and specificity (lines 6-10), and removes the unwanted records (e.g. noise), and removes duplicate records.
The following is the search strategy details using the Ovid feature where search notes are provided in brackets […] and therefore not searchable text.

**SEARCH STRATEGY DETAIL:**

| **Embase <1974 to 2020 April 20>** | | | |
|---|---|---|---|
| **#** | **Searches** | **Results** | **Type** |
| **1** | exp Coronavirus/ | 12785 | Advanced |
| **2** | exp Coronavirus Infections/ | 11934 | Advanced |
| **3** | (coronavirus* or corona virus* or OC43 or NL63 or 229E or HKU1 or HCoV* or ncov* or covid* or sars-cov* or sarscov* or Sars-coronavirus* or Severe Acute Respiratory Syndrome Coronavirus*).mp. | 28363 | Advanced |
| **4** | (or/1-3) and 20190101:20301231.(dc). [this set is the sensitive/broad part of the search] | 6920 | Advanced |

| | | | |
|---|---|---|---|
| **5** | 4 not (SARS or SARS-CoV or MERS or MERS-CoV or Middle East respiratory syndrome or camel* or dromedar* or equine or coronary or coronal or covidence* or covidien or influenza virus or HIV or bovine or calves or TGEV or feline or porcine or BCoV or PED or PEDV or PDCoV or FIPV or FCoV or SADS-CoV or canine or CCov or zoonotic or avian influenza or H1N1 or H5N1 or H5N6 or IBV or murine corona*).mp. [line 5 removes noise in the search results] | 3253 | Advanced |
| **6** | ((pneumonia or covid* or coronavirus* or corona virus* or ncov* or 2019-ncov or sars*).mp. or exp pneumonia/) and Wuhan.mp. | 687 | Advanced |
| **7** | (coronavirus disease 2019 or 2019-ncov or ncov19 or ncov-19 or 2019-novel CoV or severe acute respiratory syndrome coronavirus 2 or sars-cov2 or sars-cov-2 or sarscov2 or sarscov-2 or Sars-coronavirus2 or Sars-coronavirus-2 or SARS-like coronavirus* or coronavirus-19 or covid19 or covid-19 or covid 2019 or ((novel or new or nouveau) adj2 (CoV or nCoV or covid or coronavirus* or corona virus or Pandemi*2)) or ((covid or covid19 or covid-19) and pandemic*2) or (coronavirus* and pneumonia)).mp. | 7322 | Advanced |
| **8** | (coronavirus disease 2019 or severe acute respiratory syndrome coronavirus 2).sh,dj. | 782 | Advanced |
| **9** | ("630575119" or "630830186" or "630941329" or "631043694" or "631260659" or "631272428" or "631272880" or "631286076" or "631290163" or "631308782" or "631324397" or "631352500" or "631416440" or "631431802" or "631452886" or "631456079" or "631457551" or "631462438" or "631462876" or "631465538" or "631465685" or "631469310" or "2004499662" or "2004505338" or "2005280837" or "2005387675" or "2005408544" or "2005484987" or "2005549151").an. [Articles not captured by this search when created in April 2020, pending further indexing by NLM/Elsevier] | 29 | Advanced |
| **10** | (or/6-9) and 20191201:20301231.(dc). [Lines 5 to 8 are specific to Covid-19] | 4281 | Advanced |
| **11** | 5 or 10 | 4838 | Advanced |
| **12** | remove duplicates from 11 | 4666 | Advanced |

***AUTHORS:*** *Ovid staff:* Michelle Volesko Brewer*, health sciences librarian and* Pieter van der Houwen*, product manager. With enormous appreciation for the clinical consultation of this search by: Elaine Larson, RN, PhD, FAAN, CIC, Anna C. Maxwell Professor Emerita and Special Lecturer, School of Nursing, Professor Emerita of Epidemiology, Mailman School of Public Health, Columbia University, Scholar in Residence, New York Academy of Medicine and former editor, American Journal of Infection Control.*