Chest CT and rapid antigen testing for diagnosis of COVID-19 in emergency trauma surgery patients that require urgent care during the pandemic: an umbrella review protocol

Dylan Griswold, Andres Gempeler, Gail Rosseau, Neema Kaseje, WALTER D JOHNSON, Angelos Kolias, Peter J Hutchinson, Andres M Rubiano

Submitted to: JMIR Research Protocols
on: October 24, 2020

Table of Contents

Chest CT and rapid antigen testing for diagnosis of COVID-19 in emergency trauma surgery patients that require urgent care during the pandemic: an umbrella review protocol

Dylan Griswold[1, 2] BA; Andres Gempeler[3] MD; Gail Rosseau[4] MD; Neema Kaseje[5] MD; WALTER D JOHNSON[6] MD, MBA, MPH; Angelos Kolias[1, 2] MD, PhD; Peter J Hutchinson[1, 2] MBBS, PhD, FRCS; Andres M Rubiano[7] MD, PhD

[1]NIHR Global Health Research Group on Neurotrauma University of Cambridge Cambridge GB
[2]Division of Neurosurgery, Department of Clinical Neurosciences Addenbrooke's Hospital University of Cambridge Cambridge GB
[3]Clinical Research Center Fundación Valle del Lili Cali CO
[4]Department of Neurosurgery George Washington University School of Medicine and Health Sciences Washington US
[5]Surgical Systems Research Group Kisumu KE
[6]Schools of Medicine and Public Health Loma Linda University Loma Linda US
[7]Neuroscience Institute INUB-MEDITECH Research Group Bogota CO

Corresponding Author:
Andres M Rubiano MD, PhD
Neuroscience Institute
INUB-MEDITECH Research Group
Av. Cra. 9 No. 131 A - 02
Bogota
CO

Abstract

Background: Many healthcare facilities in low-and middle-income countries are inadequately resourced and may lack optimal organization and governance, especially concerning surgical health systems. COVID-19 has the potential to decimate these already strained surgical healthcare services unless health systems take stringent measures to protect healthcare workers (HCWs) from viral exposure and ensure the continuity of specialized care for the patients.

Objective: This systematic review aims to identify and summarize the available literature regarding the efficacy of chest CT and rapid testing for emergency trauma surgery patients to reduce the risk of COVID-19 infection in trauma surgery staff in low-resource environments (LREs).

Methods: We will conduct several searches in the L·OVE (Living OVerview of Evidence) platform for COVID-19, a system that performs automated regular searches in PubMed, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), and over thirty other sources. The search results will be presented according to the PRISMA flow diagram. This review will preferentially consider systematic reviews of experimental and quasi-experimental studies, as well as individual studies of such designs, evaluating the effect of chest CT and rapid testing for emergency trauma surgery patients in preventing COVID-19 infection in emergency trauma surgery staff. Critical appraisal of the eligible studies for methodological quality will be conducted. Data will be extracted using the standardized data extraction tool in Covidence. Studies will, when possible, be pooled in a statistical meta-analysis using JBI SUMARI. The Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach for grading the certainty of evidence will be followed, and a Summary of Findings (SoF) will be created.

Results: Ethics approval is not required for this systematic review, as there will be no patient involvement. The search for this systematic review commenced in October 2020, and we expect to publish the findings in early 2021. The plan for dissemination is to publish review findings in a peer-reviewed journal and present findings at high-level conferences that engage the most pertinent stakeholders.

Conclusions: In the era of the COVID-19, where protecting HCWs from infection is essential, up-to-date information on diagnostic capabilities and efficacy for COVID-19 infection is essential. This review will serve an important role as a repository of available evidence for the purpose of setting effective policy and clinical guideline recommendations. Clinical Trial:

International Prospective Register of Systematic Reviews (PROSPERO) CRD42020198267; https://www.crd.york.ac.uk/PROSPERO/display_record.php?RecordID=198267

(JMIR Preprints 24/10/2020:25207)
DOI: https://doi.org/10.2196/preprints.25207

Preprint Settings

1) Would you like to publish your submitted manuscript as preprint?

✓ **Please make my preprint PDF available to anyone at any time (recommended).**
Please make my preprint PDF available only to logged-in users; I understand that my title and abstract will remain visible to all users.
Only make the preprint title and abstract visible.
No, I do not wish to publish my submitted manuscript as a preprint.

2) If accepted for publication in a JMIR journal, would you like the PDF to be visible to the public?

✓ **Yes, please make my accepted manuscript PDF available to anyone at any time (Recommended).**
Yes, but please make my accepted manuscript PDF available only to logged-in users; I understand that the title and abstract will remain v
Yes, but only make the title and abstract visible (see Important note, above). I understand that if I later pay to participate in <a href="http

Original Manuscript

Chest CT and rapid antigen testing for diagnosis of COVID-19 in emergency trauma surgery patients that require urgent care during the pandemic: an umbrella review protocol

Dylan P Griswold, BA[1,2] dg550@cam.ac.uk **Andres Gempeler, MD[3]** andres.gempeler@fvl.org.co
Gail Rosseau, MD[4] gailrosseaumd@gmail.com **Walter D Johnson, MD, MBA, MPH[5]** wjohnson@llu.edu **Neema Kaseje, MD[6]** nkaseje@gmail.com **Angelos Kolias, MD, PhD[1,2]** ak721@cam.ac.uk **Peter J. Hutchinson, MBBS, PhD, FRCS[1,2]** pjah2@cam.ac.uk **Andres M. Rubiano, MD, PhD[1,7,8]** rubianoam@gmail.com

1 NIHR Global Health Research Group on Neurotrauma, University of Cambridge, Cambridge, UK 2 Division of Neurosurgery, Department of Clinical Neurosciences, Addenbrooke's Hospital & University of Cambridge, Cambridge, UK 3 Clinical Research Center, Fundación Valle del Lili, Cali, Colombia 4 Department of Neurosurgery, George Washington University School of Medicine and Health Sciences, Washington, DC, USA 5 Schools of Medicine and Public Health, Loma Linda University, Loma Linda, CA, USA 6 Surgical Systems Research Group, Kisumu, Kenya 7 Neuroscience Institute, INUB-MEDITECH Research Group, El Bosque University, Bogotá, Colombia 8 Neurological Surgery Service, Vallesalud Clinic, Cali, Colombia

Keywords: systematic review; broad-evidence synthesis; COVID-19; global health; trauma surgery; evidence-based practice; chest CT; rapid testing.

Word count: 1896

Correspondence:
Andres M. Rubiano
Neuroscience Institute, INUB-MEDITECH Research Group
El Bosque University
Bogotá, Colombia
rubianoam@gmail.com
+57 300 6154775

ABSTRACT

Background: Many healthcare facilities in low-and middle-income countries are inadequately resourced. COVID-19 has the potential to decimate surgical healthcare services unless health systems take stringent measures to protect healthcare workers (HCWs) from viral exposure and ensure the continuity of specialized care for the patients. Among these measures, timely diagnosis of COVID-19 is paramount to ensure protective measures use and isolation of patients that prevent spread of the infection to healthcare personnel caring for patients with unknown COVID-19 status or contact during the pandemic. Besides molecular and antibody tests, chest CT has been studied as a potential tool to aid in the screening or diagnosis of COVID-19 and could be valuable in the emergency setting. The purpose of the review is to inform future recommendations regarding emergency care of trauma surgery patients.

Objective This umbrella review aims to identify and summarize the available literature regarding the diagnostic accuracy of chest CT for COVID-19 in trauma surgery patients requiring urgent care.

Methods We will conduct several searches in the L·OVE (Living OVerview of Evidence) platform for COVID-19, a system that performs automated regular searches in PubMed, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), and over thirty other sources. The search results will be presented according to the PRISMA flow diagram. This review will preferentially consider systematic reviews of diagnostic test accuracy studies, as well as individual studies of such design if not included in systematic reviews, that assessed the sensitivity and specificity of chest CT in emergency trauma surgery patients. Critical appraisal of the included studies for risk of bias will be conducted. Data will be extracted using a standardized data extraction tool. Findings will be summarised narratively and the Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach for grading the certainty of evidence will be reported.

Results Ethics approval is not required for this systematic review, as there will be no patient involvement. The search for this systematic review commenced in October 2020, and we expect to publish the findings in early 2021. The plan for dissemination is to publish review findings in a peer-reviewed journal and present findings at conferences that engage the most pertinent stakeholders.

Conclusion During the COVID-19 pandemic, protecting HCWs from infection is essential. Up-to-date information on diagnostic tests efficacy for detecting COVID-19 is essential. This review will serve an important role as a thorough summary to inform evidence-based recommendations regarding with the purpose of setting effective policy and clinical guideline recommendations.

Trial Registration International Prospective Register of Systematic Reviews (PROSPERO) CRD42020198267; https://www.crd.york.ac.uk/PROSPERO/display_record.php?RecordID=198267

ARTICLE SUMMARY

Strengths and Limitations of this study

- To the best of our knowledge this protocol provides a detailed description of the first umbrella review on the accuracy of chest CT imaging for diagnosis of COVID-19 infection.
- The protocol adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols guidelines for reporting an evidence synthesis protocol.
- The protocol is being conducted by a multidisciplinary team with experience in conducting high-quality evidence synthesis.
- Given the rate at which new COVID-19 related studies are being published, there is the possibility that new studies will have been published at the time of review publication that were not available at the time of writing the review.

INTRODUCTION

Many healthcare facilities in low- and middle-income countries are inadequately resourced. COVID-19 has the potential to decimate their surgical healthcare services unless health systems take stringent measures to protect healthcare workers (HCWs) from viral exposure. A recent study showed that 15.6% of confirmed COVID-19 patients are symptomatic and that nearly half of patients with no symptoms at detection time will develop symptoms later.[1] Furthermore, the preoperative evaluation of emergency trauma patients is limited. These factors impede and confound diagnostic triage. Improper infection prevention may create a 'super-spreader' event in a high-volume healthcare facility or reduce available personnel. Consequently, the infection control strategy of trauma surgery staff and in-hospital patients is a top priority for not only low-resource environments (LREs) but for all emergency trauma facilities with patients presenting with both potential and suspected COVID-19 infection.

In addition to adequate personal protective equipment (PPE), appropriate diagnostic testing for patients presenting with an indication for emergency trauma surgery may lead to lower rates of COVID-19 infection among trauma surgery staff and among patients when not isolated. The Prehospital Index (PHI) is a triage-oriented trauma severity scoring system comprising four components: systolic blood pressure, pulse, respiratory status, and level of consciousness, each scored 0 to 5.[2] A PHI of 4 to 20 indicates major trauma, defined as a patient likely to die within 72 hours after an injury or who requires general or neurosurgical operative intervention within 24 hours. Blunt force trauma, penetrating thoracic and abdominal injuries, severe traumatic brain injury (sTBI), tension or open pneumothorax, cardiac tamponade, and massive haemothorax are aetiologies that will continue to present to emergency departments as indicators for emergency trauma surgery during the time of COVID-19. Time is of the essence for these patients. Thus, guideline recommendations for diagnostic evaluation for COVID-19 infection must consider time as a resource and allow an evidence-based practice to assuage the cost and benefits of COVID diagnostics for both the patient and for the protection of the trauma surgery staff providing care.

The primary objective of the review is to summarise the diagnostic accuracy of chest CT imaging for timely detection of COVID-19, and thus lead to timely isolation of patients and adequate protection measures to reduce the risk of transmission between patients and to health personnel caring for patients undergoing emergency trauma surgery. The purpose of the review is to inform recommendations for the rational use of chest CT on patients presenting to the emergency department with major trauma, particularly in LREs, where the high costs of indiscriminate use of diagnostic tools must be avoided without compromising the safety of HCWs or the care of trauma patients. A preliminary search of PROSPERO, MEDLINE, the Cochrane Database of Systematic Reviews, and the JBI Database of Systematic Reviews and Implementation Reports was conducted, and no current or underway similar reviews on the topic were identified.

METHODS

Protocol registration

A common protocol including this review that follows the PRISMA statement, was registered in the International Prospective Registry of Systematic Reviews (PROSPERO; CRD42020198267). Any changes to the protocol will be amended in PROSPERO and reported in the final review. This review was conducted following the JBI methodology for systematic reviews.[3] The protocol adheres to the Preferred Reporting Items for Systematic Reviews and Meta-Analyses Protocols (PRISMA-P) 2015.[4]

Patient and public involvement

Patients and the public were not involved in the design of this umbrella review protocol.

Study design

A broad evidence synthesis of peer reviewed and grey literature following the Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA) approach by Moher *et al* is planned for this review.[5] Figure 1 summarises the planned stages of the review as described in this protocol.

Data source and search strategy

We will conduct several searches in the L·OVE (Living OVerview of Evidence) platform for COVID-19, a system that performs automated regular searches in PubMed, Embase, Cochrane Central Register of Controlled Trials (CENTRAL), and over thirty other sources. When compared to manual searches, this platform consistently identifies all the available studies associated with the terms of interest.[6–10] It allows for a fast (automated) search that is easy to update - a crucial element given the urgent need to answer the research question rapidly and thoroughly. We will search for systematic reviews and diagnostic test accuracy (DTA) studies evaluating the chest CT for diagnosis of COVID-19 in patients presenting with an indication for emergency trauma surgery. Other in-hospital clinical settings will be considered for inclusion and synthesis if evidence for trauma surgery setting is not available. Different clinical settings will be treated as subgroups from which extrapolation will be possible when considered adequate. We will include preprint studies identified in our searches, but no ongoing studies will be considered. Ongoing studies will be counted as excluded studies in the corresponding tables and PRISMA diagram.

Selection of studies

Following the search, all identified citations will be collated and uploaded into EndNoteX9 (Clarivate Analytics, PA, USA). The citations will then be imported into JBI SUMARI for the review process. Two independent reviewers will examine titles and abstracts for eligibility. The full text of selected studies will be retrieved and assessed. Full-text studies that do not meet the inclusion criteria will be excluded, and a list of such excluded studies will be provided. Disagreements between the reviewers during title and abstract screening or full-text screening, will be resolved by consensus, or with a third reviewer. The results of the search will be reported in full in the final report and presented in a Preferred Reporting Items for Systematic Reviews and Meta-analyses (PRISMA) flow diagram.[11]

Eligibility criteria

Inclusion criteria

Participants

The review will preferentially include studies involving emergency trauma surgery patients during the COVID-19 pandemic. Given the likelihood that reports on this specific population are scarce or even non-existent, if not available or insufficient we will consider studies of patients in any in-hospital setting such as ER, critical care, or general wards, since we consider generalization of such results to be adequate for our question. Studies summarizing the available evidence for other viral respiratory illnesses will not be considered since we do not consider that diagnostic accuracy can be extrapolated to COVID-19.

Diagnostic tests

Chest computerised tomography for which sensitivity or specificity is assessed.

Reference standard
No individual test is currently considered a true reference (“gold”) standard for COVID-19 diagnosis. We will include studies that used a reference standard of multiple/sequential reverse transcriptase polymerase chain reaction (RT-PCR), or a composite of viral culture/RT-PCR and clinical features of COVID-19.

Types of studies

This review will consider systematic reviews of DTA studies and individual DTA studies if not included in systematic reviews, that fulfilled population and diagnostic test criteria. We will also include reports on implementation strategies and costs that could inform recommendations for variable resource settings. Only studies published in English or Spanish will be included. We will include preprint studies identified in our search, but no ongoing studies will be considered.

Exclusion criteria

We did not identify pertinent exclusion criteria for this review.

Quality assessment of included studies

Eligible studies will be critically appraised by two independent reviewers. We will use the AMSTAR tool to assess the risk of bias in systematic reviews, and the QADAS-2 tool for individual diagnostic test accuracy studies.[12–14] The results of the risk of bias assessment will be reported narratively and inform overall certainty of the review findings. Disagreements will be solved by consensus or by a third reviewer.

Data extraction

Data will be extracted from the included studies by a reviewer and verified by a second reviewer using a data extraction tool from JBI SUMARI.[3] The data extracted will include specific details about the populations, study methods, diagnostic tests, diagnostic accuracy, setting, risk of bias of individual studies and quality of the evidence. Disagreements will be solved by consensus.

Data synthesis

Studies will be summarized narratively. Sensitivity and specificity from systematic reviews and from individual studies not included in them will be reported. We do not plan on performing metanalyses unless we identify primary studies not contained in the included systematic reviews, and such studies are sufficiently homogeneous regarding design, setting, diagnostic tests and reference standard to consider metanalysis adequate. The results for clinically homogeneous studies would be meta-analyzed using RStudio software.

Assessing certainty in the findings

The Grading of Recommendations, Assessment, Development, and Evaluation (GRADE) approach for grading the certainty of evidence will be reported[15,16]. The certainty of findings derived from the individual quality of systematic reviews and overall consistency of results will be detailed.

RESULTS

No ethical approval will be required, as this review is based on already published data and does

not involve interaction with human subjects. The search for this systematic review commenced in October 2020, and we expect to publish the findings in early 2021. The plan for dissemination, however, is to publish the findings of the review in a peer-reviewed journal and present findings at high- level international conferences that engage the most pertinent stakeholders.

DISCUSSION

This protocol has been rigorously developed and designed specifically to identify and summarize the available literature regarding the efficacy of chest CT for patients presenting with an indication for emergency trauma surgery to reduce the risk of COVID-19 infection transmission to health personnel caring for these patients in LREs. Given the limited recent evidence associated with the primary objective, findings from the review will be critical for researchers, policymakers, government and non-governmental organisations for developing recommendations for diagnostic testing for COVID-19 in emergency trauma surgery settings, especially in low-and middle-income countries. If protocol modifications are required, the authors will include the detailed description of any changes along with a justification during the publication of the review. During the COVID-19 pandemic protecting HCWs from infection is essential, up-to-date information of diagnostic tests accuracy of COVID-19 is of great importance.

Contributors AR, PJH, and AK conceived the review. DG, and AG designed the review. DG and AG refined the review design and were involved in the initial drafting of the manuscript. All authors were involved in subsequent draft manuscript reviews and updates and approved the final version of this protocol.

Funding This research was commissioned by the National Institute for Health Research (NIHR) Global Health Research Group on Neurotrauma (project 16/137/105) using UK aid from the UK Government. The views expressed in this publication are those of the author(s) and not necessarily those of the NIHR or the Department of Health and Social Care. Dr Hutchinson is the Chief Investigator of the RESCUEicp and RESCUE- ASDH randomised trials. Mr Griswold was supported by the Gates Cambridge Trust. Prof Hutchinson was supported by a Research Professorship from the NIHR, the NIHR Cambridge Biomedical Research Centre, a European Union Seventh Framework Programme grant (CENTER-TBI; grant no. 602,150), and the Royal College of Surgeons of England. Dr Kolias was supported by a Clinical Lectureship from the School of Clinical Medicine, University of Cambridge, and the Royal College of Surgeons of England. Dr Gempeler was supported by the Clinical Research Center, at Fundación Valle del Lili, Colombia.

Competing interests None declared.
Patient consent for publication Not required.

Data statement: This review is based on previously published data. Any relevant data will be published with the review as either an appendix or as an online supplement.

Acknowledgements None to report

1 Zhu J, Ji P, Pang J, *et al.* Clinical characteristics of 3062 COVID-19 patients: A meta-analysis. *J Med Virol* 2020;92:1902–14. doi:10.1002/jmv.25884

2 Koehler JJ, Baer LJ, Malafa SA, *et al.* Prehospital index: A scoring system for field triage of trauma victims. *Ann Emerg Med* 1986;15:178–82. doi:10.1016/s0196-0644(86)80016-6

3 Aromataris E, Munn Z, Tufanaru C, *et al.* JBI Reviewer's Manual. Published Online First: 2019. doi:10.46658/jbirm-17-03

4 Group P-P, Moher D, Shamseer L, *et al.* Preferred reporting items for systematic review and meta-analysis protocols (PRISMA-P) 2015 statement. *Syst Rev* 2015;4:1. doi:10.1186/2046-4053-4-1

5 Moher D, Liberati A, Tetzlaff J, *et al.* Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *Int J Surg Lond Engl* 2010;8:336–41. doi:10.1016/j.ijsu.2010.02.007

6 Perelli L, Bardach A, Cohen Arazi H, Ciapponi A. L·OVE identified more relevant systematic reviews than guidelines for the management of difficult airway in adults. In: Abstracts of the 26th Cochrane Colloquium, Santiago, Chile. Cochrane Database of Systematic Reviews 2020;(1 Suppl 1) https://doi.org/10.1002/14651858.CD201901. n.d.

7 Ortuño D, Verdugo-Paiva F, Vargas JP, Lai W, Prado S, Mellado B, Bravo-Soto GA, Bravo-Jeria R, Ortiz-Muñoz L, Morel-Marambio M, Rada G. Living OVerview of the Evidence (L-OVE) versus Cochrane systematic reviews: an example in dental caries prevention. In: Abstracts of the 26th Cochrane Colloquium, Santiago, Chile. Cochrane Database of Systematic Reviews 2020;(1 Suppl 1) https://doi.org/10.1002/14651858.CD201901. n.d.

8 López PL, Ciapponi A. Living OVerview of the Evidence (L·OVE): a sensitive tool to search for evidence. In: Abstracts of the 26th Cochrane Colloquium, Santiago, Chile. Cochrane Database of Systematic Reviews 2020;(1 Suppl 1) https://doi.org/10.1002/14651858.CD201901. n.d.

9 Rada G, Acuña MP, Alvares C, Araneda G, Ávila C, Baladia E, Bohorquez S, Bravo R, Carrasco C, Carvajal-Juliá N, Chahuan J, Corbalán J, Pérez M, Pérez Gaxiola G, Pérez-Bracchiglione J, Pesce F, Pizarro AB, Poloni D, Prieto P, Ragusa M, Rojas MX, Santillan-Garcia A, Sepúlveda J, Torres López LA, Urrea G, Vargas M, Verdejo C, Verdugo F, Vergara Merino L, Villar J, Cuadrado C, Ferrada C, Peña E, Ortiz L, Olguin P, Ojeda P, Neumann J, Morel-Marambio M, Meza N, Madrid E, Izcovich A, González C, Goez-Mogollon L, Gempeler A, Garnham R, Franco JVA, Flores I, Escobar-Liquitay C. Conducting multiple living systematic reviews rapidly without compromising quality is possible with an innovative approach: L·OVE COVID-19 initiative. In: Advances in Evidence Synthesis: special issue Cochrane Database of Systematic Reviews 2020;(9 Suppl 1). https://doi.org/10.1002/14651858.CD202001. n.d.

10 Araya V, Kraemer P, Burdiles P, Herrera P, Castillo C, Sepulveda D, Quiñelen E, Pimentel L, Contreras M, Bravo R, Bravo GB, Morel M, Ortiz L, Vergudo F, Zavala C, Lobos D, Llovet V, Moll C, Rada G, Neumann I. The Living Overview of Evidence database (LOVE) may be more efficient than a traditional search of systematic reviews and randomized trials . In: Abstracts of the 26th Cochrane Colloquium, Santiago, Chile. Cochrane Database of Systematic Reviews 2020;(1 Suppl 1) https://doi.org/10.1002/14651858.CD201901. n.d.

11 Moher D, Liberati A, Tetzlaff J, *et al.* Preferred reporting items for systematic reviews and meta-analyses: the PRISMA statement. *International journal of surgery (London, England)*

2010;8:336–41. doi:10.1016/j.ijsu.2010.02.007 PMID - 20171303

12 Sterne JAC, Savović J, Page MJ, *et al.* RoB 2: a revised tool for assessing risk of bias in randomised trials. *Bmj* 2019;366:l4898. doi:10.1136/bmj.l4898

13 Shea BJ, Reeves BC, Wells G, *et al.* AMSTAR 2: a critical appraisal tool for systematic reviews that include randomised or non-randomised studies of healthcare interventions, or both. *Bmj Clin Res Ed* 2017;358:j4008. doi:10.1136/bmj.j4008

14 Sterne JA, Hernán MA, Reeves BC, *et al.* ROBINS-I: a tool for assessing risk of bias in non-randomised studies of interventions. *Bmj* 2016;355:i4919. doi:10.1136/bmj.i4919

15 Grading quality of evidence and strength of recommendations. *Bmj* 2004;328:1490. doi:10.1136/bmj.328.7454.1490

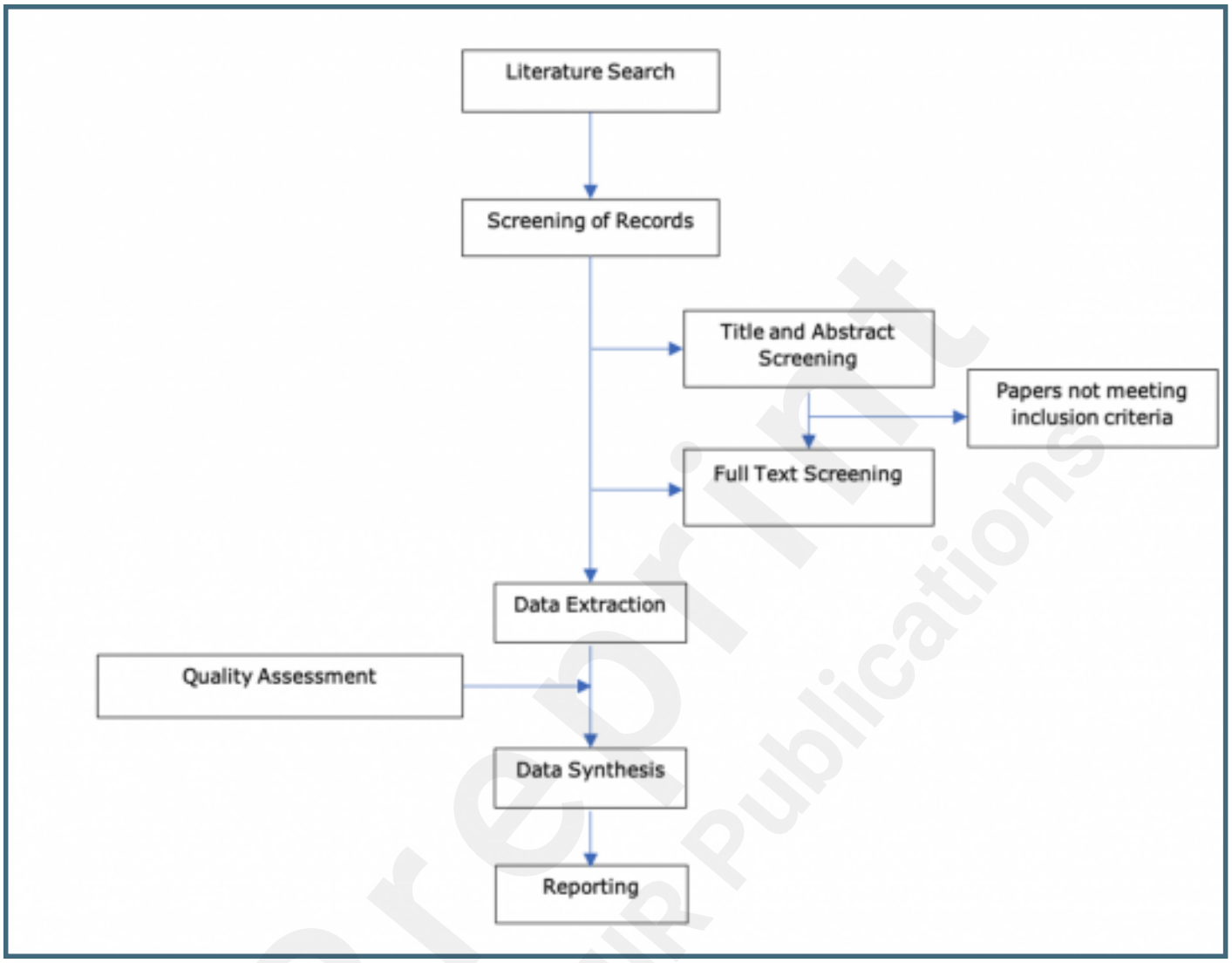
16 Guyatt G, Oxman AD, Akl EA, *et al.* GRADE guidelines: 1. Introduction-GRADE evidence profiles and summary of findings tables. *J Clin Epidemiol* 2010;64:383–94. doi:10.1016/j.jclinepi.2010.04.026

Figure 1 Summary of search strategy search process.

Supplementary Files

Figures

Summary of search strategy process.



Summary of review process.

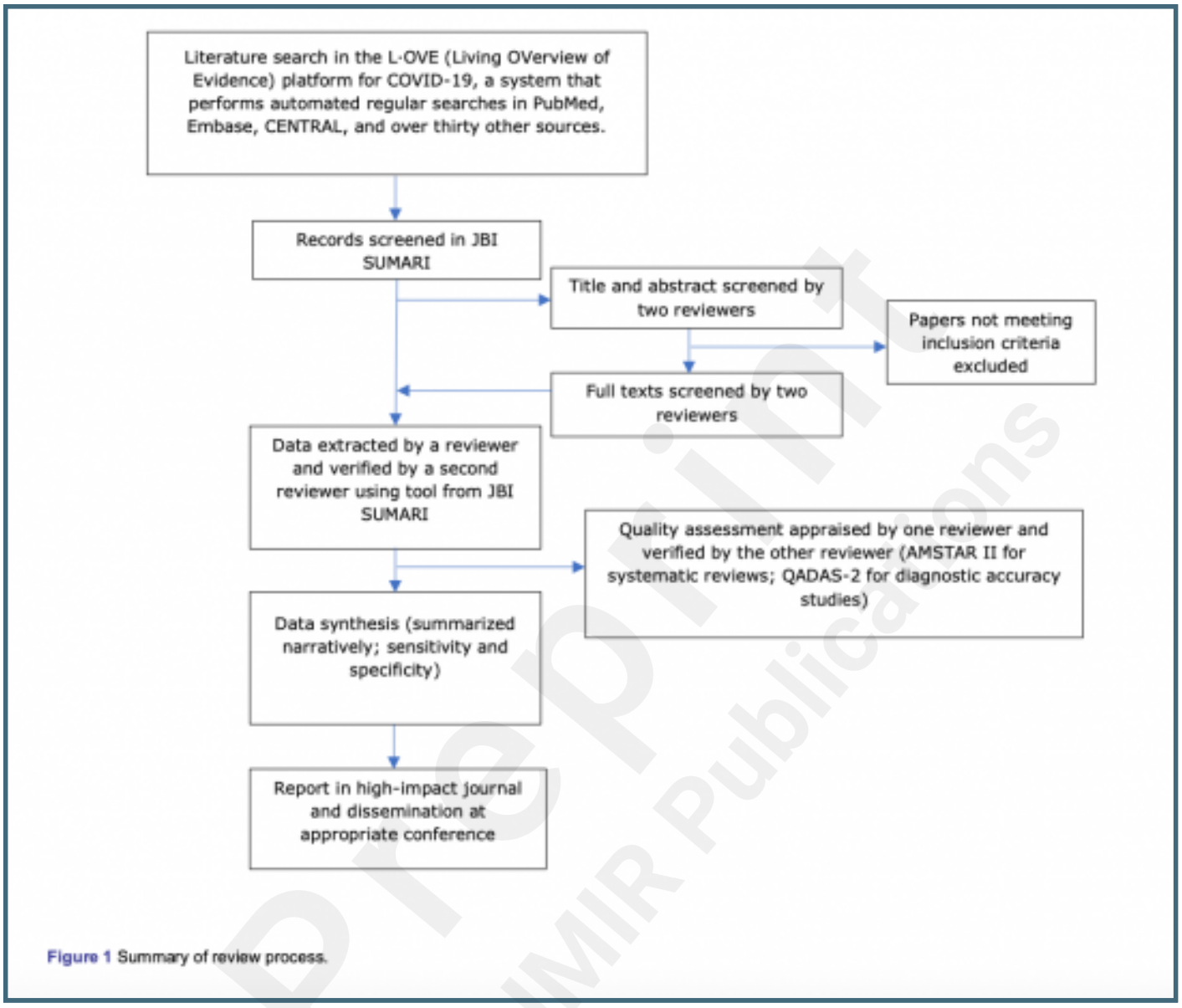


Figure 1 Summary of review process.