# Evidence Search Service Results of your search request

## Coronavirus (COVID-19)/SARS-COV2 and CT and/or RT-PCR assays

**ID of request:** 23296  
**Date of request:** 18th May, 2020  
**Date of completion:** 20th May, 2020

If you would like to request any articles or any further help, please contact:  Tom Roper at [tom.roper@nhs.net](mailto:tom.roper@nhs.net)

Please acknowledge this work in any resulting paper or presentation as: Evidence search: Coronavirus (COVID-19)/SARS-COV2 and CT and/or RT-PCR assays. Tom Roper. (20th May, 2020). BRIGHTON, UK: Brighton and Sussex Library and Knowledge Service.

**Sources searched**  
BMJ Best Practice (2)  
CEBM: Oxford COVID-19 Evidence Service (1)  
EMBASE (7)  
MEDLINE (20)  
NICE Evidence Search (0)  
UpToDate (0)

**Date range used** (5 years, 10 years): 2020 onwards   
**Limits used** (gender, article/study type, etc.): English language; UK publications   
**Search terms and notes** (full search strategy for database searches below):

Relevant natural language and controlled vocabulary terms were selected and combined. Thesaurus terms were adapted for different databases. Final result sets were de-duplicated and reviewed for relevance by the searcher, irrelevant results being discarded.

To restrict to British publications, adapted versions of the validated filters developed by Ayiku et al were used. However, many papers by Chinese, Italian, Iranian and other nationalities remained and so results were further screened to exclude papers by foreign authors. Papers by foreign authors from an overseas setting, but published in British journals, were considered ineligible for inclusion. Some authors had dual affiliations with both overseas and British institutions. These were retained, as were papers by multinational research groups which contained British authors.

Ayiku L, Levay P, Hudson T, et al. The medline UK filter: development and validation of a geographic search filter to retrieve research about the UK from OVID medline. Health Info Libr J. 2017;34(3):200‐216. doi:10.1111/hir.12187

Ayiku L, Levay P, Hudson T, et al. The Embase UK filter: validation of a geographic search filter to retrieve research about the UK from OVID Embase. Health Info Libr J. 2019;36(2):121‐133. doi:10.1111/hir.12252

For more information about the resources please go to: <https://www.bsuh.nhs.uk/library/>.

## Summary of Results

The exclusion of papers published abroad necessarily introduced bias into the search strategy, so caution should be exercised when basing service changes on the evidence retrieved, and I would advise a broader search before making major changes. Please also note the way in which I have interpreted your instruction to restrict to "united kingdom population and publications" in the search notes above.

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### [D. Search History](#SearchHistory)

## A. National and International Guidance

#### British Society of Thoracic Imaging

**BSTI radiology decision tool for suspected COVID-19** (2020)

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=dcb31eb291cb724199bcb4b1b4442c40)

## B. Synopses or Summaries

#### BMJ Publishers

**Coronavirus disease 2019 (COVID-19): Diagnosis: Investigations** (2020)

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=f4d489124e03a9fa5931497ee237795a)

Consider a CT scan of the chest. Consult local guidance on whether to perform a CT scan. The positive predictive value was low (1.5% to 30.7%) in low-prevalence regions, and the negative predictive value ranged from 95.4% to 99.8% in one meta-analysis. Pooled sensitivity and specificity were 94% and 37%, respectively. (From Kim H, Hong H, Yoon SH. Diagnostic performance of CT and reverse transcriptase-polymerase chain reaction for coronavirus disease 2019: a meta-analysis. Radiology. 2020 Apr 17:201343.) The British Society of Thoracic Imaging (BSTI) recommends CT imaging in patients with clinically suspected COVID-19 who are seriously ill if chest x-ray is uncertain or normal

#### CEBM Oxford COVID-19 Evidence Service

**What is the role of imaging and biomarkers within the current testing strategy for the diagnosis of Covid-19?** (2020)

Green K. et al

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c43c0e0078d820b1ec08e133b84383f2)

Real time reverse transcriptase polymerase chain reaction (RT-PCR)remains the main technique for COVID-19 diagnosis, although chest X-ray, CT scans, and biomarkers (i.e. high CRP, low PCT, low lymphocyte counts, elevated IL6 and IL10) have been employed by some nations to aid diagnosis or to provide evidence of more severe disease progression. Many guidelines reviewed in this document relied upon RT-PCR for initial diagnosis, monitoring of disease and for aiding discharge decisions. Sometimes, patients initially have a negative RT-PCR test but with clinical suspicion of COVID-19, are kept in isolation and re-tested until positive or a clear alternative diagnosis was found. Discharge criteria in the analysed guidelines suggested two consecutive negative RT-PCR tests over 24-72h, to minimise the high false negative rate of the test. Considering the latest publications these criteria may not be stringent enough.

## C. Original Research

1. **A British Society of Thoracic Imaging statement: considerations in designing local imaging diagnostic algorithms for the COVID-19 pandemic**  
   Nair A. Clinical Radiology 2020;75(5):329-334.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=cd2123079b6d777db24df9577afecc7b)

1. **Acute myocardial injury is common in patients with covid-19 and impairs their prognosis.**  
   Wei Jia-Fu Heart (British Cardiac Society) 2020;:No page numbers.

OBJECTIVE: We sought to explore the prevalence and immediate clinical implications of acute myocardial injury in a cohort of patients with covid-19 in a region of China where medical resources are less stressed than in Wuhan (the epicentre of the pandemic)., METHODS: We prospectively assessed the medical records, laboratory results, chest CT images and use of medication in a cohort of patients presenting to two designated covid-19 treatment centres in Sichuan, China. Outcomes of interest included death, admission to an intensive care unit (ICU), need for mechanical ventilation, treatment with vasoactive agents and classification of disease severity. Acute myocardial injury was defined by a value of high-sensitivity troponin T (hs-TnT) greater than the normal upper limit., RESULTS: A total of 101 cases were enrolled from January to 10 March 2020 (average age 49 years, IQR 34-62 years). Acute myocardial injury was present in 15.8% of patients, nearly half of whom had a hs-TnT value fivefold greater than the normal upper limit. Patients with acute myocardial injury were older, with a higher prevalence of pre-existing cardiovascular disease and more likely to require ICU admission (62.5% vs 24.7%, p=0.003), mechanical ventilation (43.5% vs 4.7%, p<0.001) and treatment with vasoactive agents (31.2% vs 0%, p<0.001). Log hs-TnT was associated with disease severity (OR 6.63, 95% CI 2.24 to 19.65), and all of the three deaths occurred in patients with acute myocardial injury., CONCLUSION: Acute myocardial injury is common in patients with covid-19 and is associated with adverse prognosis. Copyright © Author(s) (or their employer(s)) 2020. No commercial re-use. See rights and permissions. Published by BMJ.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d2b5db7a84f34dfe90da1b5213fffb9a)

1. **An update on COVID-19 for the radiologist - A British society of Thoracic Imaging statement**  
   Rodrigues J.C.L. Clinical Radiology 2020;75(5):323-325.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=5a2b19645bcad334e7c8af577bcfd8b1)

1. **Anosmia as a presenting symptom of SARS-CoV-2 infection in healthcare workers - A systematic review of the literature, case series, and recommendations for clinical assessment and management.**  
   Lechner M. Rhinology 2020;:No page numbers.

BACKGROUND: Healthcare workers are at the forefront of the ongoing COVID-19 pandemic and are at high risk for both the contraction and subsequent spread of virus. Understanding the role of anosmia as an early symptom of infection may improve monitoring and management of SARS-CoV2 infection., METHODOLOGY: We conducted a systematic review of the literature of SARS-CoV2 infection/COVID-19 and anosmia to help inform management of anosmia in healthcare works. We report a case series of healthcare workers, who presented with a loss of sense of smell secondary to COVID-19 infection to demonstrate management principles. RT-PCR was used to confirm COVID-19 positivity and psychophysical testing of olfaction was performed using the British version of the University of Pennsylvania Smell Identification Test, UPSIT., RESULTS: The systematic literature search returned 31 articles eligible for inclusion in the study and informed our recommendations for clinical assessment and management. All three healthcare professionals who presented with loss of sense of smell subsequently tested positive for SARS-CoV-2. Psychophysical testing of olfaction using the UPSIT confirmed mild and moderate microsmia in two, respectively, and normosmia at day 17 in one., CONCLUSIONS: Olfactory (+/- gustatory) dysfunction is indicative of COVID-19 infection and thus has important implications in the context of healthcare workers, or key workers in general, who work in close contact with others if not recognised as suffering from COVID. This leads to a potentially higher likelihood of spreading the virus. In conjunction with our literature review these findings have helped with creating recommendations on the assessment and management of olfactory dysfunction during the ongoing COVID-19 pandemic, both for healthcare workers and patients.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=8ff9910a1231cf29ecb3f54f96e59451)

1. **Coronavirus (COVID-19) Pandemic: What the Nuclear Medicine Departments Should Know**  
   Gnanasegaran G. Journal of nuclear medicine technology 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=65f207ba678c0e3503d3846b3fb76cc8)

1. **Coronavirus Disease (COVID-19) in Children - What We Know So Far and What We Do Not?.**  
   Balasubramanian S. Indian pediatrics 2020;:No page numbers.

Pediatric coronavirus disease - 19 (COVID-19) infection is relatively mild when compared to adults, and children are reported to have a better prognosis. Mortality in children appears rare. Clinical features of COVID-19 in children include fever and cough, but a large proportion of infected children appears to be asymptomatic and may contribute to transmission. It remains unclear why children and young adults are less severely affected than older individuals, but this might involve differences in immune system function in the elderly and/or differences in the expression/function of the cellular receptor for Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) - Angiotensin converting enzyme 2 (ACE2). Laboratory findings and chest imaging may not be specific in children with COVID-19. Diagnosis is by Reverse transcriptase-Polymerase chain reaction (RT-PCR) testing of upper or lower respiratory tract secretions. This review additionally considers COVID-19 in immunosuppressed children, and also suggests a management algorithm for the few children who appear to present with life threatening infection, including the potential use of antiviral and immunomodulatory treatment. The most significant threat to global child health from SARS-CoV-2 is unlikely to be related to COVID 19 in children, but rather the socio-economic consequences of a prolonged pandemic.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=01c4aa0df8c2f8edfdb32df7ec348753)

1. **COVID-19 patients and the radiology department - advice from the European Society of Radiology (ESR) and the European Society of Thoracic Imaging (ESTI)**  
   Revel M.-P. European Radiology 2020;:No page numbers.

Abstract: This document from the European Society of Radiology (ESR) and the European Society of Thoracic Imaging (ESTI) aims to present the main imaging features, and the role of CT scan in the early diagnosis of COVID-19, describing, in particular, the typical findings which make it possible to identify the disease and distinguish it from bacterial causes of infection, and to define which category of patients may benefit from CT imaging. The precautions that must be taken when performing scans to protect radiologists and technologists from infection will be described. The organisational measures that can be taken within radiology departments in order to cope with the influx of patients, while continuing to manage other emergency and time-sensitive activity (e.g. oncology, other infectious diseases etc.), will be discussed. Key points: \* Bilateral ground glass opacities are typical CT manifestations of COVID-19. \* Crazy paving and organising pneumonia pattern are seen at a later stage. \* Extensive consolidation is associated with a poor prognosis.Copyright © 2020, European Society of Radiology.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b956ac647b8b39135bfc03c16d916521)

1. **COVID-19: A case series to support radiographer preliminary clinical evaluation**  
   Woznitza N. Radiography 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=836e56e4d45cbe6aff20153873d93563)

1. **Covid-19: testing times.**  
   Beeching Nick J. BMJ (Clinical research ed.) 2020;369:m1403.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4cb0547f3fb764fd9cc81818165841a7)

1. **COVID-19: the case for health-care worker screening to prevent hospital transmission.**  
   Black James R. M Lancet (London, England) 2020;395(10234):1418-1420.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=4003f3412ea3f7ff43098a25aa3bb53f)

1. **Detection of 2019 novel coronavirus (2019-nCoV) by real-time RT-PCR**  
   Corman V.M. Eurosurveillance 2020;25(3):2000045.

Background: The ongoing outbreak of the recently emerged novel coronavirus (2019-nCoV) poses a challenge for public health laboratories as virus isolates are unavailable while there is growing evidence that the outbreak is more widespread than initially thought, and international spread through travellers does already occur. Aim(s): We aimed to develop and deploy robust diagnostic methodology for use in public health laboratory settings without having virus material available. Method(s): Here we present a validated diagnostic workflow for 2019-nCoV, its design relying on close genetic relatedness of 2019-nCoV with SARS coronavirus, making use of synthetic nucleic acid technology. Result(s): The workflow reliably detects 2019-nCoV, and further discriminates 2019-nCoV from SARS-CoV. Through coordination between academic and public laboratories, we confirmed assay exclusivity based on 297 original clinical specimens containing a full spectrum of human respiratory viruses. Control material is made available through European Virus Archive Global (EVAg), a European Union infrastructure project. Conclusion(s): The present study demonstrates the enormous response capacity achieved through coordination of academic and public laboratories in national and European research networks.Copyright © 2020 European Centre for Disease Prevention and Control (ECDC). All rights reserved.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d6e8edf917899c28c624529fc3a60f96)

1. **Diagnostic Testing for Severe Acute Respiratory Syndrome-Related Coronavirus-2: A Narrative Review.**  
   Cheng Matthew P. Annals of internal medicine 2020;:No page numbers.

Diagnostic testing to identify persons infected with severe acute respiratory syndrome-related coronavirus-2 (SARS-CoV-2) infection is central to control the global pandemic of COVID-19 that began in late 2019. In a few countries, the use of diagnostic testing on a massive scale has been a cornerstone of successful containment strategies. In contrast, the United States, hampered by limited testing capacity, has prioritized testing for specific groups of persons. Real-time reverse transcriptase polymerase chain reaction-based assays performed in a laboratory on respiratory specimens are the reference standard for COVID-19 diagnostics. However, point-of-care technologies and serologic immunoassays are rapidly emerging. Although excellent tools exist for the diagnosis of symptomatic patients in well-equipped laboratories, important gaps remain in screening asymptomatic persons in the incubation phase, as well as in the accurate determination of live viral shedding during convalescence to inform decisions to end isolation. Many affluent countries have encountered challenges in test delivery and specimen collection that have inhibited rapid increases in testing capacity. These challenges may be even greater in low-resource settings. Urgent clinical and public health needs currently drive an unprecedented global effort to increase testing capacity for SARS-CoV-2 infection. Here, the authors review the current array of tests for SARS-CoV-2, highlight gaps in current diagnostic capacity, and propose potential solutions.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=02feeca73a261d8636a84d4602ee292f)

1. **Estimating the infection and case fatality ratio for coronavirus disease (COVID-19) using age-adjusted data from the outbreak on the Diamond Princess cruise ship, February 2020.**  
   Russell Timothy W. Euro surveillance : bulletin Europeen sur les maladies transmissibles = European communicable disease bulletin 2020;25(12):No page numbers.

Adjusting for delay from confirmation to death, we estimated case and infection fatality ratios (CFR, IFR) for coronavirus disease (COVID-19) on the Diamond Princess ship as 2.6% (95% confidence interval (CI): 0.89-6.7) and 1.3% (95% CI: 0.38-3.6), respectively. Comparing deaths on board with expected deaths based on naive CFR estimates from China, we estimated CFR and IFR in China to be 1.2% (95% CI: 0.3-2.7) and 0.6% (95% CI: 0.2-1.3), respectively.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=e6aeee83f552f433d436b57a9664b957)

1. **First experience of COVID-19 screening of health-care workers in England.**  
   Hunter Ewan Lancet (London, England) 2020;395(10234):e77-e78.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=c329cd84afe79488f75282b2cbce0786)

1. **Managing high clinical suspicion COVID-19 inpatients with negative RT-PCR: A pragmatic and limited role for thoracic CT**  
   Tavare A.N. Thorax 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=0d012baf0ed355265d2a9a8aca227478)

1. **Point of care and intensive care lung ultrasound: A reference guide for practitioners during COVID-19.**  
   Moore S. Radiography (London, England : 1995) 2020;:No page numbers.

OBJECTIVES: Current events with the recent COVID-19 outbreak are necessitating steep learning curves for the NHS workforce. Ultrasound, although not used in the diagnosis of COVID-19 may be utilised by practitioners at the point of care (POC) or on the intensive care units (ITUs) where rapid assessment of the lung condition may be required. The aim of this article was to review current literature surrounding the use of lung ultrasound in relation to COVID-19 and provide Sonographers with a quick and digestible reference guide for lung pathologies., KEY FINDINGS: Ultrasound is being used in Italy and China to help review lung condition during the COVID-19 outbreak however not strictly as a diagnostic tool as Computed Tomography (CT) of the chest and chest radiographs are currently gold standard. Ultrasound is highly sensitive in the detection of multiple lung pathologies which can be demonstrated in conjunction with COVID-19 however to date there are no specific, nor pathognomonic findings which relate to COVID-19 on ultrasound., CONCLUSION: Lung ultrasound is highly sensitive and can quickly and accurately review lung condition creating potential to assess for changes or resolution over time, especially in the ITU and POC setting. However it should not be used as a diagnostic tool for COVID-19 due to low specificity in relation to the virus., IMPLICATIONS FOR PRACTICE: The adoption of lung ultrasound to monitor lung condition during the COVID-19 outbreak may reduce the need for serial exposure to ionising radiation on the wards and in turn reduce the number of radiographers required to attend infected wards and bays, protecting both patients and the workforce. Copyright © 2020. Published by Elsevier Ltd.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=7f31c67f296f8e985eaa30afcc07ebc6)

1. **Role of chest CT in patients with acute abdomen during the COVID-19 era.**  
   Lima D. S The British journal of surgery 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b8f172b5ab548506bf045be6087212e8)

1. **RT-QPCR testing of SARS-COV-2: A primer**  
   Bustin S.A. International Journal of Molecular Sciences 2020;21(8):3004.

Testing for the presence of coronavirus is an essential diagnostic tool for monitoring and managing the current COVID-19 pandemic. The only reliable test in current use for testing acute infection targets the genome of SARS-CoV-2, and the most widely used method is quantitative fluorescence-based reverse transcription polymerase chain reaction (RT-qPCR). Despite its ubiquity, there is a significant amount of uncertainty about how this test works, potential throughput and reliability. This has resulted in widespread misrepresentation of the problems faced using this test during the current COVID-19 epidemic. This primer provides simple, straightforward and impartial information about RT-qPCR.Copyright © 2020 by the authors. Licensee MDPI, Basel, Switzerland.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=d9b5484c2a44e32db618c2aecf7f6393)

1. **Screening of healthcare workers for SARS-CoV-2 highlights the role of asymptomatic carriage in COVID-19 transmission.**  
   Rivett Lucy eLife 2020;9:No page numbers.

Significant differences exist in the availability of healthcare worker (HCW) SARS-CoV-2 testing between countries, and existing programmes focus on screening symptomatic rather than asymptomatic staff. Over a 3-week period (April 2020), 1,032 asymptomatic HCWs were screened for SARS-CoV-2 in a large UK teaching hospital. Symptomatic staff and symptomatic household contacts were additionally tested. Real-time RT-PCR was used to detect viral RNA from a throat+nose self-swab. 3% of HCWs in the asymptomatic screening group tested positive for SARS-CoV-2. 17/30 (57%) were truly asymptomatic/pauci-symptomatic. 12/30 (40%) had experienced symptoms compatible with coronavirus disease 2019 (COVID-19) >7 days prior to testing, most self-isolating, returning well. Clusters of HCW infection were discovered on two independent wards. Viral genome sequencing showed that the majority of HCWs had the dominant lineage B.1. Our data demonstrates the utility of comprehensive screening of HCWs with minimal or no symptoms. This approach will be critical for protecting patients and hospital staff. Copyright © 2020, Rivett et al.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=3e6e86b96548bf4bbc157c7427c881df)

1. **Society of Cardiovascular Computed Tomography guidance for use of cardiac computed tomography amidst the COVID-19 pandemic Endorsed by the American College of Cardiology**  
   Choi A.D. Journal of Cardiovascular Computed Tomography 2020;:No page numbers.

The world is currently suffering through a pandemic outbreak of severe respiratory syndrome coronavirus 2 (SARS-CoV-2) known as Coronavirus Disease 2019 (COVID-19). The United States (US) Centers for Disease Control and Prevention (CDC) currently advises medical facilities to "reschedule non-urgent outpatient visits as necessary". The European Centre for Disease Prevention and Control, the United Kingdom National Health Service and several other international agencies covering Asia, North America and most regions of the world have recommended similar "social distancing" measures. The Society of Cardiovascular Computed Tomography (SCCT) offers guidance for cardiac CT (CCT) practitioners to help implement these international recommendations in order to decrease the risk of COVID-19 transmission in their facilities while deciding on the timing of outpatient and inpatient CCT exams. This document also emphasizes SCCT's commitment to the health and well-being of CCT technologists, imagers, trainees, and research community, as well as the patients served by CCT.Copyright © 2020

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=151347aa5cda255ba803ce4f4511de11)

1. **Spectroscopy as a tool for detection and monitoring of Corona Virus (COVID-19)**  
   Khan R.S. Expert review of molecular diagnostics 2020;:No page numbers.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=617eb2caaa06b6be1ec21b275d9e492d)

1. **The continuing evolution of COVID-19 imaging pathways in the UK: a British Society of Thoracic Imaging expert reference group update.**  
   Hare S. S Clinical radiology 2020;75(6):399-404.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=b18c55b4d6ec89ddead27c728fe847bc)

1. **The Importance of Chest CT Scan in COVID-19**  
   Tenda E.D. Acta medica Indonesiana 2020;52(1):68-73.

The coronavirus disease 2019 (COVID-19) is a highly transmissible acute respiratory disease that is caused by the Severe Acute Respiratory Syndrome CoronaVirus-2 (SARS-CoV-2), a beta coronavirus first discovered in Wuhan, China, in late 2019. COVID-19 has been spreading swiftly globally, and as of March 2020, has been officially declared a pandemic by the World Health Organization (WHO). One of the challenges in managing COVID-19 is the identification of a swift, accessible, and reliable diagnostic modality that could serve as an alternative to a reverse-transcriptase polymerase chain reaction (RT-PCR). As of the writing of this paper, RT-PCR is still the recommended tool in diagnosing COVID-19, but the notion of a more prompt and accurate diagnostic tool is a possibility worth looking into. The objective of this case study is to investigate the importance and utility of chest computed tomography (CT) in the diagnosis of COVID-19, as increasing pieces of evidence suggest that chest CT could prove useful in the clinical pathway in diagnosing COVID-19.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=868fd8273f9d565950437b732bc8deea)

1. **The role of cardiovascular imaging for myocardial injury in hospitalized COVID-19 patients**  
   Cosyns B. European heart journal cardiovascular Imaging 2020;:No page numbers.

Recent EACVI recommendations described the importance of limiting cardiovascular imaging during the COVID-19 pandemic in order to reduce virus transmission, protect healthcare professionals from contamination, and reduce consumption of personal protective equipment. However, an elevated troponin remains a frequent request for cardiac imaging in COVID-19 patients, partly because it signifies cardiac injury due to a variety of causes and partly because it is known to convey a worse prognosis. The present paper aims to provide guidance to clinicians regarding the appropriateness of cardiac imaging in the context of troponin elevation and myocardial injury, how best to decipher the mechanism of myocardial injury, and how to guide patient management.Copyright Published on behalf of the European Society of Cardiology. All rights reserved. © The Author(s) 2020. For permissions, please email: journals.permissions@oup.com.

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1. **The role of CT in case ascertainment and management of COVID-19 pneumonia in the UK: insights from high-incidence regions**  
   Chua F. The Lancet Respiratory Medicine 2020;8(5):438-440.

[Available online at this link](https://www.knowledgeshare.nhs.uk/index.php?PageID=link_resolver&link=2dc71ec87ab033d6997aa92c3e62e978)

1. **The role of imaging in 2019 novel coronavirus pneumonia (COVID-19).**  
   Yang Wenjing European radiology 2020;:No page numbers.

Almost the entire world, not only China, is currently experiencing the outbreak of a novel coronavirus that causes respiratory disease, severe pneumonia, and even death. The outbreak began in Wuhan, China, in December of 2019 and is currently still ongoing. This novel coronavirus is highly contagious and has resulted in a continuously increasing number of infections and deaths that have already surpassed the SARS-CoV outbreak that occurred in China between 2002 and 2003. It is now officially a pandemic, announced by WHO on the 11th of March. Currently, the 2019 novel coronavirus (SARS-CoV-2) can be identified by virus isolation or viral nucleic acid detection; however, false negatives associated with the nucleic acid detection provide a clinical challenge and thus make the imaging examination crucial. Imaging exams have been a main clinical diagnostic criteria for the 2019 novel coronavirus disease (COVID-19) in China. Imaging features of multiple patchy areas of ground glass opacity and consolidation predominately in the periphery of the lungs are characteristic manifestations on chest CT and extremely helpful in the early detection and diagnosis of this disease, which aids prompt diagnosis and the eventual control of this emerging global health emergency. Key Points \* In December 2019, China, an outbreak of pneumonia caused by a novel, highly contagious coronavirus raised grave concerns and posed a huge threat to global public health. \* Among the infected patients, characteristic findings on CT imaging include multiple, patchy, ground-glass opacity, crazy-paving pattern, and consolidation shadows, mainly distributed in the peripheral and subpleural areas of both lungs, which are very helpful for the frontline clinicians. \* Imaging examination has become the indispensable means not only in the early detection and diagnosis but also in monitoring the clinical course, evaluating the disease severity, and may be presented as an important warning signal preceding the negative RT-PCR test results.

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1. **Time Course of Lung Changes at Chest CT during Recovery from Coronavirus Disease 2019 (COVID-19).**  
   Pan Feng Radiology 2020;295(3):715-721.

Background Chest CT is used to assess the severity of lung involvement in coronavirus disease 2019 (COVID-19). Purpose To determine the changes in chest CT findings associated with COVID-19 from initial diagnosis until patient recovery. Materials and Methods This retrospective review included patients with real-time polymerase chain reaction-confirmed COVID-19 who presented between January 12, 2020, and February 6, 2020. Patients with severe respiratory distress and/or oxygen requirement at any time during the disease course were excluded. Repeat chest CT was performed at approximately 4-day intervals. Each of the five lung lobes was visually scored on a scale of 0 to 5, with 0 indicating no involvement and 5 indicating more than 75% involvement. The total CT score was determined as the sum of lung involvement, ranging from 0 (no involvement) to 25 (maximum involvement). Results Twenty-one patients (six men and 15 women aged 25-63 years) with confirmed COVID-19 were evaluated. A total of 82 chest CT scans were obtained in these patients, with a mean interval (+/-standard deviation) of 4 days +/- 1 (range, 1-8 days). All patients were discharged after a mean hospitalization period of 17 days +/- 4 (range, 11-26 days). Maximum lung involved peaked at approximately 10 days (with a calculated total CT score of 6) from the onset of initial symptoms (R2 = 0.25, P < .001). Based on quartiles of chest CT scans from day 0 to day 26 involvement, four stages of lung CT findings were defined. CT scans obtained in stage 1 (0-4 days) showed ground-glass opacities (18 of 24 scans [75%]), with a mean total CT score of 2 +/- 2; scans obtained in stage 2 (5-8 days) showed an increase in both the crazy-paving pattern (nine of 17 scans [53%]) and total CT score (mean, 6 +/- 4; P = .002); scans obtained in stage 3 (9-13 days) showed consolidation (19 of 21 scans [91%]) and a peak in the total CT score (mean, 7 +/- 4); and scans obtained in stage 4 (>=14 days) showed gradual resolution of consolidation (15 of 20 scans [75%]) and a decrease in the total CT score (mean, 6 +/- 4) without crazy-paving pattern. Conclusion In patients recovering from coronavirus disease 2019 (without severe respiratory distress during the disease course), lung abnormalities on chest CT scans showed greatest severity approximately 10 days after initial onset of symptoms. © RSNA, 2020.

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## D. Search History

**Reviewer’s note (22/05/2020):** Regarding reverse transcriptase-polymerase chain reaction (RT-PCR), more specific subject headings are available in both Embase and Medline, so you could consider using those (Embase: exp "REVERSE TRANSCRIPTION POLYMERASE CHAIN REACTION"/ Medline: "REVERSE TRANSCRIPTASE POLYMERASE CHAIN REACTION"/).

|  | **Source** | **Criteria** | **Results** |
| --- | --- | --- | --- |
| 1. | EMBASE | exp \*betacoronavirus/ or exp \*Coronavirus infection/ | 10749 |
| 2. | EMBASE | ((corona\* or corono\*) adj1 (virus\* or viral\* or virinae\*)).ti,ab. | 666 |
| 3. | EMBASE | ((novel or new or nouveau or "2019") adj2 (coronavirus\* or "corona virus\*" or coronovirus\* or coronavirinae\*)).ti,ab. | 3691 |
| 4. | EMBASE | (Wuhan\* or Hubei\* or Huanan or "2019-nCoV" or 2019nCoV or nCoV2019 or "nCoV-2019" or "COVID-19" or COVID19 or "CORVID-19" or CORVID19 or "WN-CoV" or WNCoV or "HCoV-19" or HCoV19 or CoV or "2019 novel\*" or Ncov or "n-cov" or "SARS-CoV-2" or "SARSCoV-2" or "SARSCoV2" or "SARS-CoV2" or SARSCov19 or "SARS-Cov19" or "SARSCov-19" or "SARS-Cov-19" or Ncovor or Ncorona\* or Ncorono\* or NcovWuhan\* or NcovHubei\* or NcovChina\* or NcovChinese\*).ti,ab. | 21213 |
| 5. | EMBASE | (("seafood market\*" or "food market\*") adj10 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab. | 59 |
| 6. | EMBASE | ((outbreak\* or wildlife\* or pandemic\* or epidemic\*) adj1 (China\* or Chinese\* or Huanan\*)).ti,ab. | 89 |
| 7. | EMBASE | 1 or 2 or 3 or 4 or 5 or 6 | 27463 |
| 8. | EMBASE | exp \*polymerase chain reaction/ | 54377 |
| 9. | EMBASE | "reverse transcriptase polymerase chain reaction\*".ti,ab. | 25579 |
| 10. | EMBASE | rt-pcr.ti,ab. | 193441 |
| 11. | EMBASE | exp \*computer assisted tomography/ | 233790 |
| 12. | EMBASE | (CT adj3 (thora$ or chest)).ti,ab. | 35881 |
| 13. | EMBASE | (computed tomography adj3 (thora$ or chest)).ti,ab. | 15498 |
| 14. | EMBASE | 8 or 9 or 10 or 11 or 12 or 13 | 527560 |
| 15. | EMBASE | exp United Kingdom/ | 414205 |
| 16. | EMBASE | (national health service\* or nhs\*).ti,ab,in,ad. | 344308 |
| 17. | EMBASE | (english not ((published or publication\* or translat\* or written or language\* or speak\* or literature or citation\*) adj5 english)).ti,ab. | 42510 |
| 18. | EMBASE | (gb or "g.b." or britain\* or (british\* not "british columbia") or uk or "u.k." or united kingdom\* or (england\* not "new england") or northern ireland\* or northern irish\* or scotland\* or scottish\* or ((wales or "south wales") not "new south wales") or welsh\*).ti,ab,jx,in,ad. | 3147320 |
| 19. | EMBASE | (bath or "bath's" or ((birmingham not alabama\*) or ("birmingham's" not alabama\*) or bradford or "bradford's" or brighton or "brighton's" or bristol or "bristol's" or carlisle\* or "carlisle's" or (cambridge not (massachusetts\* or boston\* or harvard\*)) or ("cambridge's" not (massachusetts\* or boston\* or harvard\*)) or (canterbury not zealand\*) or ("canterbury's" not zealand\*) or chelmsford or "chelmsford's" or chester or EMBASE "chester's" or chichester or "chichester's" or coventry or "coventry's" or derby or "derby's" or (durham not (carolina\* or nc)) or ("durham's" not (carolina\* or nc)) or ely or "ely's" or exeter or "exeter's" or gloucester or "gloucester's" or hereford or "hereford's" or hull or "hull's" or lancaster or "lancaster's" or leeds\* or leicester or "leicester's" or (lincoln not nebraska\*) or ("lincoln's" not nebraska\*) or (liverpool not (new south wales\* or nsw)) or ("liverpool's" not (new south wales\* or nsw)) or ((london not (ontario\* or ont or toronto\*)) or ("london's" not (ontario\* or ont or toronto\*)) or manchester or "manchester's" or (newcastle not (new south wales\* or nsw)) or ("newcastle's" not (new south wales\* or nsw)) or norwich or "norwich's" or nottingham or "nottingham's" or oxford or "oxford's" or peterborough or "peterborough's" or plymouth or "plymouth's" or portsmouth or "portsmouth's" or preston or "preston's" or ripon or "ripon's" or salford or "salford's" or salisbury or "salisbury's" or sheffield or "sheffield's" or southampton or "southampton's" or st albans or stoke or "stoke's" or sunderland or "sunderland's" or truro or "truro's" or wakefield or "wakefield's" or wells or westminster or "westminster's" or winchester or "winchester's" or wolverhampton or "wolverhampton's" or (worcester not (massachusetts\* or boston\* or harvard\*)) or ("worcester's" not (massachusetts\* or boston\* or harvard\*)) or (york not ("new york\*" or ny or ontario\* or ont or toronto\*)) or ("york's" not ("new york\*" or ny or ontario\* or ont or toronto\*))))).ti,ab,in,ad. | 2421914 |
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| 21. | EMBASE | (aberdeen or "aberdeen's" or dundee or "dundee's" or edinburgh or "edinburgh's" or glasgow or "glasgow's" or inverness or (perth not australia\*) or ("perth's" not australia\*) or stirling or "stirling's").ti,ab,in,ad. | 334312 |
| 22. | EMBASE | (armagh or "armagh's" or belfast or "belfast's" or lisburn or "lisburn's" or londonderry or "londonderry's" or derry or "derry's" or newry or "newry's").ti,ab,in,ad. | 44934 |
| 23. | EMBASE | or/15-22 | 3835024 |
| 24. | EMBASE | (exp "arctic and antarctic"/ or exp oceanic regions/ or exp western hemisphere/ or exp africa/ or exp asia/) not (exp united kingdom/ or europe/) | 2874018 |
| 25. | EMBASE | 23 not 24 | 3641445 |
| 26. | EMBASE | 7 and 14 and 25 | 107 |
| 27. | EMBASE | limit 26 to yr="2020 -Current" | 33 |
| 1. | MEDLINE | exp \*BETACORONAVIRUS/ or exp \*CORONAVIRUS INFECTIONS/ | 10749 |
| 2. | MEDLINE | ((corona\* or corono\*) adj1 (virus\* or viral\* or virinae\*)).ti,ab. | 666 |
| 3. | MEDLINE | ((novel or new or nouveau or "2019") adj2 (coronavirus\* or "corona virus\*" or coronovirus\* or coronavirinae\*)).ti,ab. | 3691 |
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| 5. | MEDLINE | (("seafood market\*" or "food market\*") adj10 (Wuhan\* or Hubei\* or China\* or Chinese\* or Huanan\*)).ti,ab. | 59 |
| 6. | MEDLINE | ((outbreak\* or wildlife\* or pandemic\* or epidemic\*) adj1 (China\* or Chinese\* or Huanan\*)).ti,ab. | 89 |
| 7. | MEDLINE | 1 or 2 or 3 or 4 or 5 or 6 | 27463 |
| 8. | MEDLINE | exp Polymerase Chain Reaction/ | 908462 |
| 9. | MEDLINE | "reverse transcriptase polymerase chain reaction\*".ti,ab. | 25579 |
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| 11. | MEDLINE | exp Tomography, X-Ray Computed/ | 53508 |
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| 13. | MEDLINE | (computed tomography adj3 (thora$ or chest)).ti,ab. | 15498 |
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| 15. | MEDLINE | exp United Kingdom/ | 414205 |
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| 25. | MEDLINE | 23 not 24 | 3546959 |
| 26. | MEDLINE | 7 and 14 and 25 | 174 |
| 27. | MEDLINE | limit 26 to yr="2020 -Current" | 45 |

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