

# Covid -19 Evidence Update

## Summarized and appraised resources

### 20/11/2020

*The following resources are available via electronically or in print. Please follow links to access full text online, or contact the library if you have any difficulties with the links.*

The resources included in this update are summaries or critically appraised articles.

If you would like a more specific search conducted please email [kgh-tr.library.service@nhs.net](mailto:kgh-tr.library.service@nhs.net)

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# Royal College/Society Guidance

## Latest information and guidance

NICE <a href="#">Rapid guidelines and evidence summaries</a>	NHS England and NHS Improvement <a href="#">Advice for clinicians in secondary care</a> <i>(Includes Prevention, Infection control, Assessment, Management, Discharge, Isolation, Speciality guides, Estates and facilities, Finance ...)</i>
Royal College of Emergency Medicine <a href="#">Covid-19 resources</a>	Association for Palliative Medicine <a href="#">Covid 19 and Palliative, End of Life and Bereavement Care</a>
Royal College of General Practitioners <a href="#">COVID-19</a>	Royal College of Obstetrics & Gynaecologists <a href="#">Coronavirus (COVID-19), pregnancy and women's health</a>
Royal College of Paediatrics and Child Health <a href="#">Key topics COVID 19</a>	Royal College of Pathologists <a href="#">COVID-19 Resources Hub</a>
Royal College of Psychiatrists <a href="#">COVID-19: Community mental health settings</a>	Royal College of Surgeons <a href="#">COVID 19 Information Hub</a>
Royal Pharmaceutical Society <a href="#">COVID-19</a>	British Society of Echocardiography <a href="#">COVID-19 clinical guidance</a>
British Society of Gastroenterology <a href="#">COVID 19 updates</a>	British Society for Haematology <a href="#">COVID-19 Updates</a>
British Society for Rheumatology <a href="#">COVID-19 updates for members</a>	Combined Intensive Care Society, Association of Anaesthetists, Royal College of Anaesthetists, Faculty of Intensive Care Medicine guidance <a href="#">Clinical Guidance</a>

## Covid-19 Evidence Alerts from McMaster Plus

COVID-19 Evidence Alerts to current best evidence for clinical care of people with threatened, suspected or confirmed COVID-19 infection. Reports are critically appraised for scientific merit, and those with acceptable scientific merit are appraised for relevance and importance by frontline clinicians.

<b>Diagnosis</b>
<a href="#">Saliva in the Diagnosis of COVID-19: A Review and New Research Directions.</a> <i>Fernandes LL, Pacheco VB, Borges L, et al. J Dent Res</i>
<a href="#">Chest x-ray in the COVID-19 pandemic: Radiologists' real-world reader performance.</a> <i>Cozzi A, Schiaffino S, Arpaia F, et al. Eur J Radiol</i>
<a href="#">Meta-analysis of Diagnostic Performance of Serology Tests for COVID-19: Impact of Assay Design and Post-symptom-onset Intervals.</a> <i>Wang H, Ai J, Loeffelholz MJ, et al. Emerg Microbes Infect</i>
<b>Etiology</b>
<a href="#">Effect of IBD medications on COVID-19 outcomes: results from an international registry.</a> <i>Ungaro RC, Brenner EJ, Geary RB, et al. Gut</i>
<a href="#">The influence of ACE inhibitors and ARBs on hospital length of stay and survival in people with COVID-19.</a> <i>Braude P, Carter B, Short R, et al. Int J Cardiol Heart Vasc</i>
<b>Primary Prevention</b>
<a href="#">Efficacy of cloth face mask in prevention of novel coronavirus infection transmission: A systematic review and meta-analysis.</a> <i>Sharma SK, Mishra M, Mudgal SK J Educ Health Promot</i>
<a href="#">Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review.</a> <i>Pollock A, Campbell P, Cheyne J, et al. Cochrane Database Syst Rev</i>
<b>Prognosis</b>
<a href="#">A structured review of placental morphology and histopathological lesions associated with SARS-CoV-2 infection.</a> <i>Sharps MC, Hayes DJL, Lee S, et al. Placenta</i>
<a href="#">Current evidence of SARS-CoV-2 vertical transmission: an integrative review.</a> <i>Oliveira LV, Silva CRACD, Lopes LP, et al. Rev Assoc Med Bras (1992)</i>
<b>Clinical Prediction Guide</b>
<a href="#">Development and external validation of a prediction risk model for short-term mortality among hospitalized U.S. COVID-19 patients: A proposal for the COVID-AID risk tool.</a> <i>Hajifathalian K, Sharaiha RZ, Kumar S, et al. PLoS One</i>
<a href="#">Early prediction of mortality risk among patients with severe COVID-19, using machine learning.</a> <i>Hu C, Liu Z, Jiang Y, et al. Int J Epidemiol</i>
<a href="#">Mortality Risk Assessment Using CHA(2)DS(2)-VASc Scores In Patients Hospitalized With COVID -19 Infection.</a> <i>Ruocco G, McCullough PA, Tecson KM, et al. Am J Cardiol</i>
<b>Treatment</b>
<a href="#">Efficacy and Safety of Corticosteroid Treatment in Patients With COVID-19: A Systematic</a>

<p><a href="#"><u>Review and Meta-Analysis.</u></a>  Cheng W, Li Y, Cui L, et al. <b>Front Pharmacol</b></p>
<p><a href="#"><u>Association of corticosteroids use and outcomes in COVID-19 patients: A systematic review and meta-analysis.</u></a>  Tlayeh H, Mhish OH, Enani MA, et al. <b>J Infect Public Health</b></p>
<p><a href="#"><u>Antiviral agents, glucocorticoids, antibiotics, and intravenous immunoglobulin usage in 1142 patients with coronavirus disease 2019: a systematic review and meta-analysis.</u></a>  Pei L, Zhang S, Huang L, et al. <b>Pol Arch Intern Med</b></p>
<p><a href="#"><u>Effect of Hydroxychloroquine on Clinical Status at 14 Days in Hospitalized Patients With COVID-19: A Randomized Clinical Trial.</u></a>  Self WH, Semler MW, Leither LM, et al. <b>JAMA</b></p>
<p><a href="#"><u>Effect of bromhexine on clinical outcomes and mortality in COVID-19 patients: A randomized clinical trial.</u></a>  Ansarin K, Tolouian R, Ardalan M, et al. <b>Bioimpacts</b></p>
<p><a href="#"><u>A Meta-Analysis on the Effects of Hydroxychloroquine on COVID-19.</u></a>  Hussain N, Chung E, Heyl JJ, et al. <b>Cureus</b></p>
<p><a href="#"><u>Efficacy of Lianhua Qingwen Compared with Conventional Drugs in the Treatment of Common Pneumonia and COVID-19 Pneumonia: A Meta-Analysis.</u></a>  Hu C, Liang M, Gong F, et al. <b>Evid Based Complement Alternat Med</b></p>
<p><a href="#"><u>An open-label, randomized trial of the combination of IFN-kappa plus TFF2 with standard care in the treatment of patients with moderate COVID-19.</u></a>  Fu W, Liu Y, Liu L, et al. <b>EClinicalMedicine</b></p>
<p><a href="#"><u>Tocilizumab for treating COVID-19: a systemic review and meta-analysis of retrospective studies.</u></a>  Zhao M, Lu J, Tang Y, et al. <b>Eur J Clin Pharmacol</b></p>

# Cochrane Systematic Reviews

## [Cochrane Evidence on COVID-19: a roundup](#)

### [Physical interventions to interrupt or reduce the spread of respiratory viruses](#)

<https://doi.org/10.1002/14651858.CD006207.pub5>

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#### **Why we did this Cochrane Review**

We wanted to find out whether physical measures stop or slow the spread of respiratory viruses.

#### **What did we do?**

We searched for studies that looked at physical measures to stop people catching a respiratory virus infection.

We were interested in how many people in the studies caught a respiratory virus infection, and whether the physical measures had any unwanted effects.

**Search date:** This is an update of a review first published in 2007. We included evidence published up to 1 April 2020.

#### **What we found**

We identified 67 relevant studies. They took place in low-, middle-, and high-income countries worldwide: in hospitals, schools, homes, offices, childcare centres, and communities during non-epidemic influenza periods, the global H1N1 influenza pandemic in 2009, and epidemic influenza seasons up to 2016. No studies were conducted during the COVID-19 pandemic. We identified six ongoing, unpublished studies; three of them evaluate masks in COVID-19.

One study looked at quarantine, and none eye protection, gowns and gloves, or screening people when they entered a country.

We assessed the effects of:

- medical or surgical masks;
- N95/P2 respirators (close-fitting masks that filter the air breathed in, more commonly used by healthcare workers than the general public); and
- hand hygiene (hand-washing and using hand sanitiser).

#### **What are the results of the review?**

##### **Medical or surgical masks**

Seven studies took place in the community, and two studies in healthcare workers. Compared with wearing no mask, wearing a mask may make little to no difference in how many people caught a flu-like illness (9 studies; 3507 people); and probably makes no difference in how many people have flu confirmed by a laboratory test (6 studies; 3005 people). Unwanted effects were rarely reported, but included discomfort.

##### **N95/P2 respirators**

Four studies were in healthcare workers, and one small study was in the community. Compared with wearing medical or surgical masks, wearing N95/P2 respirators probably makes little to no difference in how many people have confirmed flu (5 studies; 8407 people); and may make little to no difference in how many people catch a flu-like illness (5 studies; 8407 people) or respiratory illness (3 studies; 7799 people). Unwanted effects were not well reported; discomfort was mentioned.

### **Hand hygiene**

Following a hand hygiene programme may reduce the number of people who catch a respiratory or flu-like illness, or have confirmed flu, compared with people not following such a programme (16 studies; 61,372 people). Few studies measured unwanted effects; skin irritation in people using hand sanitiser was mentioned.

### **How reliable are these results?**

Our confidence in these results is generally low for the subjective outcomes related to respiratory illness, but moderate for the more precisely defined laboratory-confirmed respiratory virus infection, related to masks and N95/P2 respirators. The results might change when further evidence becomes available. Relatively low numbers of people followed the guidance about wearing masks or about hand hygiene, which may have affected the results of the studies.

### **Key messages**

We are uncertain whether wearing masks or N95/P2 respirators helps to slow the spread of respiratory viruses.

Hand hygiene programmes may help to slow the spread of respiratory viruses.

### **[Routine laboratory testing to determine if a patient has COVID-19](https://doi.org/10.1002/14651858.CD013787)**

<https://doi.org/10.1002/14651858.CD013787>

Inge Stegeman Eleanor A Ochodo Fatuma Guleid Gea A. Holtman Bada Yang Clare Davenport Jonathan J Deeks Jacqueline Dinnes Sabine Dittrich Devy Emperador Lotty Hooft René Spijker Yemisi Takwoingi Ann Van den Bruel Junfeng Wang Miranda Langendam Jan Y Verbakel Mariska MG Leeftang Cochrane COVID-19 Diagnostic Test Accuracy Group

### **What did we want to find out?**

People with suspected COVID-19 need to know quickly whether they are infected so that they can self-isolate, receive treatment, and inform close contacts.

Currently, the standard test for COVID-19 is usually the RT-PCR test. In the RT-PCR, samples from the nose and throat are sent away for testing, usually to a large, central laboratory with specialist equipment. Other tests include imaging tests, like X-rays, which also require specialist equipment.

We wanted to know whether routine laboratory tests were sufficiently accurate to diagnose COVID-19 in people with suspected COVID-19. We also wanted to know whether they were accurate enough to prioritize patients for different levels of treatment.

### **What did we do?**

We searched for studies that assessed the accuracy of routine laboratory tests to diagnose COVID-19 compared with RT-PCR or other tests. Studies could be of any design and be set anywhere in the world. Studies could include participants of any age or sex, with suspected COVID-19, or use samples from people known to have – or not to have - COVID-19.

## **What we found**

We found 21 studies that looked at 67 different routine laboratory tests for COVID-19. Most of the studies looked at how accurately these tests diagnosed infection with the virus causing COVID-19. Four studies included both children and adults, 16 included only adults and one study only children. Seventeen studies were done in China, and one each in Iran, Italy, Taiwan and the USA. All studies took place in hospitals, except one that used samples from a database. Most studies used RT-PCR to confirm COVID-19 diagnosis.

Accuracy of tests is most often reported using 'sensitivity' and 'specificity'. Sensitivity is the proportion of people with COVID-19 correctly detected by the test; specificity is the proportion of people without COVID-19 who are correctly identified by the test. The nearer sensitivity and specificity are to 100%, the better the test. A test to prioritize people for treatment would require a high sensitivity of more than 80%.

Where four or more studies evaluated a particular test, we pooled their results and analyzed them together. Our analyses showed that only three of the tests had both sensitivity and specificity over 50%. Two of these were markers for general inflammation (increases in interleukin-6 and C-reactive protein). The third was for lymphocyte count decrease. Lymphocytes are a type of white blood cell where a low count might indicate infection.

## **How reliable are the results?**

Our confidence in the evidence from this review is low because the studies were different from each other, which made them difficult to compare. For example, some included very sick people, while some included people with hardly any COVID-19 symptoms. Also, the diagnosis of COVID-19 was confirmed in different ways: RT-PCR was sometimes used in combination with other tests.

## **Who do the results of this review apply to?**

Routine laboratory tests can be issued by most healthcare facilities. However, our results are probably not representative of most clinical situations in which these tests are being used. Most studies included very sick people with high rates of COVID-19 virus infection of between 27% and 76%. In most primary healthcare facilities, this percentage will be lower.

## **What does this mean?**

Routine laboratory tests cannot distinguish between COVID-19 and other diseases as the cause of infection, inflammation or tissue damage. None of the tests performed well enough to be a standalone diagnostic test for COVID-19 nor to prioritize patients for treatment. They will mainly be used to provide an overall picture about the health status of the patient. The final COVID-19 diagnosis has to be made based on other tests.

## **How up-to-date is this review?**

We searched all COVID-19 studies up to 4 May 2020.

## **[Interventions to support the resilience and mental health of frontline health and social care professionals during and after a disease outbreak, epidemic or pandemic: a mixed methods systematic review](https://doi.org/10.1002/14651858.CD013779)**

<https://doi.org/10.1002/14651858.CD013779>

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## **What is 'resilience'?**

Working as a 'frontline' health or social care professional during a global disease pandemic, like COVID-19, can be very stressful. Over time, the negative effects of stress can lead to mental health problems such as depression and anxiety, which, in turn, may affect work, family and other social relationships. 'Resilience' is

the ability to cope with the negative effects of stress and so avoid mental health problems and their wider effects.

Healthcare providers can use various strategies (interventions) to support resilience and mental well-being in their frontline healthcare professionals. These could include work-based interventions, such as changing routines or improving equipment; or psychological support interventions, such as counselling.

### **What did we want to find out?**

First (objective 1), we wanted to know how successfully any interventions improved frontline health professionals' resilience or mental well-being.

Second (objective 2), we wanted to know what made it easier (facilitators) or harder (barriers) to deliver these interventions.

### **What did we do?**

We searched medical databases for any kind of study that investigated interventions designed to support resilience and mental well-being in healthcare professionals working at the front line during infectious disease outbreaks. The disease outbreaks had to be classified by the World Health Organization (WHO) as epidemics or pandemics, and take place from 2002 onwards (the year before the severe acute respiratory syndrome (SARS) outbreak).

### **What did we find?**

We found 16 relevant studies. These studies came from different disease outbreaks - two were from SARS; nine from Ebola; one from Middle East respiratory syndrome (MERS); and four from COVID-19. The studies mainly looked at workplace interventions that involved either psychological support (for example, counselling or seeing a psychologist) or work-based interventions (for example, giving training, or changing routines).

Objective 1: one study investigated how well an intervention worked. This study was carried out immediately after the Ebola outbreak, and investigated whether staff who were training to give other people (such as patients and their family members) 'psychological first aid' felt less 'burnt out'. We had some concerns about the results that this study reported and about some of its methods. This means that our certainty of the evidence is very low and we cannot say whether the intervention helped or not.

Objective 2: all 16 studies provided some evidence about barriers and facilitators to implement interventions. We found 17 main findings from these studies. We do not have high confidence in any of the findings; we had moderate confidence in six findings and low to very low confidence in 11 findings.

We are moderately confident that the following two factors were barriers to implementation of an intervention: frontline workers, or the organisations in which they worked, not being fully aware of what they needed to support their mental well-being; and a lack of equipment, staff time or skills needed for an intervention.

We are moderately confident that the following three factors were facilitators to implementation of an intervention: interventions that could be adapted for a local area; having effective communication, both formally within an organisation and informal or social networks; and having positive, safe and supportive learning environments for frontline healthcare professionals.

We are moderately confident that the knowledge and beliefs that frontline healthcare professionals have about an intervention can either help or hinder implementation of the intervention.

### **Key messages**



We did not find any evidence that tells us about how well different strategies work at supporting the resilience and mental well-being of frontline workers. We found some limited evidence about things that might help successful delivery of interventions. Properly planned research studies to find out the best ways to support the resilience and mental well-being of health and social care workers are urgently required.

### How up-to-date is this review?

This review includes studies published up to 28 May 2020.

## Evidence Aid

<https://evidenceaid.org/evidence/coronavirus-covid-19/>

This evidence collection contains plain-language summaries of high-quality research which are available in English, and translated into French, Spanish, Portuguese, Arabic and Chinese (simplified and traditional).

The collection includes summaries of systematic reviews that might be relevant to the direct impact of COVID-19 (including reviews of emerging research, as well as existing reviews of relevant interventions) on health and other outcomes, the impact of the COVID-19 response on other conditions, and issues to consider for the recovery period after COVID-19.

### [Social distancing methods to prevent transmission of COVID-19 \(multiple reviews\)](#)

Added November 18, 2020

**What is this?** Social distancing is widely used to minimise transmission of COVID-19. Several reviews are summarised here, and their citations and links to their full text are available further down this summary.

**What was found:** At the time of the Chu rapid review (search done on 3 May 2020), the research showed that social distancing was associated with a large reduction in infection with coronaviruses at distances of at least 1 metre, and may be more effective at 2 metres. However, the Teasdale review (search done in February 2013) found that people were ambivalent about adopting personal distancing behaviours in some contexts, because of their perceived adverse impact and potential social stigma.

Jefferson et al found that there was insufficient evidence to support social distancing measures to prevent transmission of respiratory viruses at the time of their review (search done in October 2010).

The Fong review (search done in November 2018) found limited evidence that social distancing measures reduced transmission in influenza pandemics. These included isolating ill individuals, contact tracing, quarantining exposed individuals, school measures or closures, work measures or closures and crowd avoidance. The review highlighted potential impacts of social distancing, including personal and societal consequences, as well as resource implications for services.

### What are the reviews:

**Citation:** Chu DK, Akl EA, Duda S, et al. *Physical distancing, face masks, and eye protection to prevent person-to-person transmission of SARS-CoV-2 and COVID-19: a systematic review and meta-analysis*. Lancet 2020; 395:1973-87.

In this rapid review, the authors searched for studies of the effects of physical distancing, face masks and eye protection on transmission of COVID-19, SARS and MERS in healthcare and non-healthcare situations. They

did not restrict their searches by language of publication and searched up to 3 May 2020. They included 172 observational studies, including 44 comparative studies (total: 25,697 participants).

**Citation:** Fong MW, Gao H, Wong JY, et al. *Nonpharmaceutical measures for pandemic influenza in non-healthcare settings: social distancing measures.* Emerging Infectious Diseases. 2020 May;26(5):976.

In this series of systematic reviews, the authors searched for studies of the effects of social distancing measures for pandemic influenza. They reviewed six social distancing measures: isolating ill individuals, contact tracing, quarantining exposed individuals, school measures or closures, workplace measures or closures, and crowd avoidance, with multiple search periods documented up to November 2018. They included 107 epidemiological studies, 37 simulation studies, 12 observational studies, and one interventional study; and included analysis of archival data from the 1918 pandemic.

**Citation:** Jefferson T, Del Mar CB, Dooley L, et al. *Physical interventions to interrupt or reduce the spread of respiratory viruses.* Cochrane Database of Systematic Reviews. 2011;(7):CD006207.

In this Cochrane review, the authors searched for randomized trials and observational studies assessing physical interventions that might prevent transmission of respiratory viruses. They did not restrict their searches by language of publication and did the search in October 2010. They identified 67 eligible studies, spread across many different interventions.

**Citation:** Teasdale E, Santer M, Geraghty AWA, et al. *Public perceptions of non-pharmaceutical interventions for reducing transmission of respiratory infection: systematic review and synthesis of qualitative studies.* BMC Public Health. 2014;14:589.

In this systematic review, the authors searched for qualitative research on public perceptions of physical interventions for reducing transmission of respiratory infection. They did not restrict their searches by date or language of publication and did the search in February 2013. They included 16 studies (total: 1022 participants).

#### **Other reviews of similar topics:**

**Citation:** Saunders-Hastings P, Reisman J, Krewski D. *Assessing the state of knowledge regarding the effectiveness of interventions to contain pandemic influenza transmission: a systematic review and narrative synthesis.* PLOS One 2016; 11(12): e0168262

### **[Chloroquine or hydroxychloroquine are probably ineffective for COVID-19 \(search up to 17 July 2020\)](#)**

Added November 13, 2020

**Citation:** Kashour Z, Riaz R, Garbati MA, et al. *Efficacy of chloroquine or hydroxychloroquine in COVID-19 patients: a systematic review and meta-analysis.* Journal of Antimicrobial Chemotherapy. 2020 Oct 8;dkaa403.

**What is this?** Chloroquine and hydroxychloroquine have been suggested as possible treatments for COVID-19.

In this rapid review, the authors searched for studies of the effects of chloroquine or hydroxychloroquine for patients with COVID-19. They did not restrict their searches by date or type of publication and did the search on 17 July 2020. They included 7 randomized trials and 14 cohort studies, with a total of 20,979 patients. Of

these, 1 randomized trial and 12 cohort studies (total: 15,938 hospitalized patients) examined the effect of hydroxychloroquine on short-term mortality.

**What was found:** Moderate certainty evidence suggests that hydroxychloroquine, with or without azithromycin, does not reduce short-term mortality in patients hospitalized with COVID-19 or risk of hospitalization in outpatients with COVID-19.

### [Corticosteroids as a treatment for COVID-19 \(multiple reviews\)](#)

Added November 12, 2020

**What is this?** Some patients with COVID-19 develop pneumonia or respiratory distress. Corticosteroids (such as dexamethasone and hydrocortisone) have anti-inflammatory and immunomodulatory properties, which may make them suitable treatments for this.

Many systematic reviews have been done and a summary of their findings are given here. These reviews include rapid reviews of COVID-19 and earlier reviews of corticosteroids for various respiratory problems. More details of the reviews, including citations and links to their full text, are available lower down this summary.

**What was found:** At the time of these reviews, the most recent randomized trial evidence suggests that corticosteroid treatment may reduce mortality among some COVID-19 patients.

One review (Singh 2020) (searches done in June 2020) included the RECOVERY randomized trial and another review (WHO/REACT 2020) mentioned that trial's findings, which emerged during the conduct of the review. At the time they were done, those reviews showed a reduction in mortality for patients with COVID-19 who are ventilated or receiving supplementary oxygen therapy if treated with corticosteroids compared to usual care, but that there was no survival benefit in patients with mild COVID-19 infection.

WHO/REACT (2020) also observed that the association with lower mortality was stronger in patients who were not on vasoactive medication, that reductions in mortality were similar for dexamethasone and hydrocortisone and that corticosteroids did not appear to increase the risk of serious adverse events.

At the time of the Ye 2020 review (searches done in April 2020)

At the time of the Ye 2020 review (searches done in April 2020), the included studies suggested that corticosteroid use might reduce mortality from COVID-19 and acute respiratory distress syndrome (ARDS), and the duration of mechanical ventilation. The review also identified that cautious individual risk assessment may be required and that there were no confirmed biomarkers to guide the use of corticosteroids for COVID-19.

At the time of the Lu 2020 (searches done in March 2020) and Yang JW 2020 (searches done in April 2020) reviews, it was noted that corticosteroid treatment may reduce the symptoms and clinical signs of COVID-19 in some patients, but, in the studies included in these reviews, this benefit was outweighed by higher risks of mortality or other complications. The Lu 2020 review also noted that corticosteroid treatment is not recommended for children with COVID-19 infection.

At the time of the Wang 2020 review (searches done in May 2020), the included studies showed that severely ill patients were more likely to require corticosteroids. No difference was observed in the use of corticosteroids between patients who survived and those who did not.

Stern (2017) reported that corticosteroids might reduce mortality in severe pneumonia and reduce morbidity in adults with non-severe pneumonia.

Lewis (2019) reported that using corticosteroids might reduce deaths from any cause within three months and increase the number of ventilator-free days for patients with ARDS.

Saunders-Hastings (2016) reported that corticosteroid treatment had no effect on acute lung injury (which can be a complication of COVID-19 infection).

#### **What are the reviews:**

**Citation:** Lewis SR, Pritchard MW, Thomas CM, et al. *Pharmacological agents for adults with acute respiratory distress syndrome*. Cochrane Database of Systematic Reviews 2019;(7):CD004477.

In this Cochrane review, the authors searched for randomized trials of drugs for adults with ARDS. They did not restrict by language of publication and searched for studies published from 2000 to 2018. They identified 48 eligible studies (6299 participants) of five principal types of agent: corticosteroids, surfactants, N-acetylcysteine, statins and beta-agonists.

In this Cochrane review, the authors searched for randomized trials of drugs for adults with ARDS. They did not restrict by language of publication and searched for studies published from 2000 to 2018. They identified 48 eligible studies (6299 participants) of five principal types of agent: corticosteroids, surfactants, N-acetylcysteine, statins and beta-agonists.

**Citation:** Li H, Chen C, Hu F, et al. *Impact of corticosteroid therapy on outcomes of persons with SARS-CoV-2, SARS-CoV, or MERS-CoV infection: a systematic review and meta-analysis*. Leukemia 2020 Jun;34(6):1503-11.

In this rapid review, the authors searched for studies of corticosteroids for COVID-19, SARS and MERS. They restricted their searches to articles published in English and Chinese and searched on 20 March 2020. They included one randomized trial and 10 cohort studies; 4 of the included studies focused on COVID-19.

**Citation:** Lu S, Zhou Q, Huang L, et al. *Effectiveness and safety of glucocorticoids to treat COVID-19: a rapid review and meta-analysis*. Annals of Translational Medicine 2020 May;8(10):627.

In this rapid review, the authors searched for studies of steroids for children and adults with COVID-19, SARS and MERS. They restricted their search to articles published in English and Chinese and searched from 2003 to 31 March 2020. They included one randomized trial and 22 cohort studies, with a total of 13,815 patients; 5 included studies assessed corticosteroids for COVID-19.

**Citation:** Saunders-Hastings P, Reisman J, Krewski D. *Assessing the state of knowledge regarding the effectiveness of interventions to contain pandemic influenza transmission: a systematic review and narrative synthesis*. PLOS One 2016;11(12):e0168262.

In this systematic overview and narrative syntheses, the authors searched for systematic reviews and meta-analyses of interventions for containing pandemic influenza transmission. They did not restrict by date or language of publication and did their searches in July 2016. They included 17 reviews.

**Citation:** Singh AK, Majumdar S, Singh R, Misra A. *Role of corticosteroid in the management of COVID-19: A systematic review and Clinician's perspective*. Diabetes & Metabolic Syndrome: Clinical Research & Reviews 2020;14(5):971-8.

In this rapid review, the authors searched for studies of corticosteroids for COVID-19 and ARDS secondary to other viral diseases. They completed their search on 17 June 2020 and included 5 studies (including the preliminary results of the RECOVERY trial).

**Citation:** Stern A, Skalsky K, Avni T, et al. *Corticosteroids for pneumonia*. Cochrane Database of Systematic Reviews 2017;(12):CD007720.

In this Cochrane review, the authors searched for randomized trials of corticosteroids for children and adults with pneumonia. They did their search in March 2017. They included 4 studies in children (310 participants) and 13 studies in adults (1954 participants).

**Citation:** Wang Y, Ao G, Qi X, Zeng J. *The influence of corticosteroid on patients with COVID-19 infection: A meta-analysis*. American Journal of Emergency Medicine. 2020 Jun 23.

In this rapid review, the authors searched for studies investigating the role of corticosteroids in patients with severe or non-severe COVID-19. They searched for articles published between 2019 and 7 May 2020 and did not restrict their search by language. They included 16 studies (3277 participants).

**Citation:** WHO Rapid Evidence Appraisal for COVID-19 Therapies (REACT) Working Group, Sterne JAC, Murthy S, Diaz JV, et al. *Association between administration of systemic corticosteroids and mortality among critically ill patients with COVID-19: A Meta-analysis*. JAMA. 2020; 324(13):1–13.

In this rapid review, authors searched for randomised trials of corticosteroids in critically ill patients with COVID-19. They restricted their search to 3 trial registries and searched for articles published between 31 December 2019 to 6 April 2020. They included 7 trials (1703 participants) and mentioned the findings of the RECOVERY trial (6425 patients) which emerged during the conduct of their review.

**Citation:** Yang JW, Yang L, Luo RG, et al. *Corticosteroid administration for viral pneumonia: COVID-19 and beyond*. Clinical Microbiology and Infection. 2020 Jun 27;26(9):1171-7.

In this rapid review, the authors searched for studies of corticosteroids for influenza, SARS, MERS and COVID-19 pneumonia. They did not restrict their search by language of publication and searched up to 30 April 2020. They included 782 studies, of which 341 focused on corticosteroids and COVID-19. Almost all the included studies were observational studies.

**Citation:** Yang Z, Liu J, Zhou Y, et al. *The effect of corticosteroid treatment on patients with coronavirus infection: a systematic review and meta-analysis*. Journal of Infection 2020 Jul;81(1):e13-20.

In this rapid review, the authors searched for studies of corticosteroids for coronavirus infections. They restricted their searches to studies published since January 2002, but did not restrict by type or language of publication, and did the search on 15 March 2020. They included 15 studies, covering SARS (11 studies), MERS (2) and COVID-19 (2).

**Citation:** Ye Z, Wang Y, Colunga-Lozano LE, et al. *Efficacy and safety of corticosteroids in COVID-19 based on evidence for COVID-19, other coronavirus infections, influenza, community-acquired pneumonia and acute respiratory distress syndrome: a systematic review and meta-analysis*. CMAJ 2020 Jul 6;192(27):E756-67.

In this rapid review, the authors searched for studies of corticosteroids for COVID-19, other respiratory infections and ARDS. They also updated systematic reviews on ARDS, influenza and community-acquired pneumonia (CAP). They completed their search at the end of April 2020. They included 10 cohort studies and one randomized trial; 6 included studies focused on COVID-19 (with one of these focusing on COVID-19 and ARDS). Their updated systematic reviews on ARDS included 7 randomized trials, influenza (31 studies) and CAP (13 randomized trials).

**Other reviews relevant to this topic:**

**Citation:** Hermans G, De Jonghe B, Bruyninckx F, et al. *Interventions for preventing critical illness polyneuropathy and critical illness myopathy*. Cochrane Database of Systematic Reviews 2014;(1):CD006832.

**Citation:** Lansbury L, Rodrigo C, Leonardi-Bee J, et al. *Corticosteroids as adjunctive therapy in the treatment of influenza*. Cochrane Database of Systematic Reviews 2019;(2):CD010406.

**Citation:** Morra ME, Van Thanh L, Kamel MG, et al. *Clinical outcomes of current medical approaches for Middle East respiratory syndrome: A systematic review and meta-analysis*. Reviews in Medical Virology 2018;28:e1977.

### [Intensive care admissions and outcomes for COVID-19 patients \(research published up to May 2020\)](#)

Added November 11, 2020

**Citation:** Abate SM, Ahmed Ali S, Mantfardo B, et al. *Rate of Intensive Care Unit admission and outcomes among patients with coronavirus: A systematic review and Meta-analysis*. PLoS ONE. 2020 Jul 10;15(7):e0235653.

**What is this?** Some COVID-19 patients will become critically ill and need treatment in an intensive care unit (ICU).

In this rapid review and meta-analyses, the authors searched for observational studies of coronavirus patients admitted to an ICU. They restricted their searches to articles published between December 2002 and May 2020 but did not restrict their searches by language of publication. They included 37 studies (total: 24,983 participants). 26 of these were conducted on COVID-19 and the others related to Middle East respiratory syndrome (MERS) in 2012 (7 studies) or the severe acute respiratory syndrome (SARS) outbreak in 2002 (4).

**What was found:** At the time of this review, the included studies showed that the pooled rate of ICU admission was 32%, that 39% of coronavirus patients admitted to ICU died and that 66% of COVID-19 patients admitted to ICU had co-morbidity.

At the time of this review, the included studies showed that the most common complications in coronavirus patients in ICU were acute respiratory distress syndrome (54%), infection (47%) and sepsis (37%).

### [Nutrition and COVID-19 \(research up to May 2020\)](#)

Added November 11, 2020

**Citation:** BourBour F, Mirzaei Dahka S, Gholamalizadeh M, et al. *Nutrients in prevention, treatment, and management of viral infections; special focus on Coronavirus*. Archives of Physiology and Biochemistry. 2020 Jul 7:1-10.

**What is this?** Nutrient supplementation has been suggested as a way to prevent, treat and manage COVID-19.

In this rapid review, the authors searched for studies of the effects of nutrients on the immune system, viral infection and coronaviruses. They restricted their searches to articles published in English between 1990 and 2020, and did the search before mid-May 2020. They included 51 studies (including 14 meta-analyses).

**What was found:** At the time of this review, although the evidence suggested that supplementation with some nutrients may be effective in improving the health status of patients with viral infections, the impact on the health status of patients with COVID-19 was uncertain.

### [High flow nasal cannula efficiency for critically ill patients \(multiple reviews\)](#)

Added November 3, 2020

**What is this?** Some patients with COVID-19 may require oxygen support, including the use of high-flow nasal cannula for high flows of blended humidified air and oxygen. Multiple potentially relevant systematic reviews have been done and some of these are used for this summary. More details on these reviews, including citations and links to their full text, are available further down this page.

**What was found:** The Corley systematic review found insufficient evidence to determine the effects of high-flow nasal cannula compared with other forms of respiratory support for adult patients in intensive care units.

At the time of their rapid review, Agarwal *et al.* reported that high-flow nasal cannula may reduce the need for invasive ventilation and escalation of therapy when compared with conventional oxygen therapy in patients with acute hypoxemic respiratory failure. However, the relevance of the findings to COVID-19 patients is uncertain because none of the patients in the included studies had COVID-19.

At the time of their rapid review, Agarwal *et al.* reported that the evidence on droplet dispersion and aerosol generation and dispersion was of very low certainty.

#### **What are the reviews:**

**Citation:** Agarwal A, Basmaji J, Muttalib F, et al. [High-flow nasal cannula for acute hypoxemic respiratory failure in patients with COVID-19: systematic reviews of effectiveness and its risks of aerosolization, dispersion, and infection transmission.](#) Canadian Journal of Anesthesia/Journal canadien d'anesthésie. 2020;67:1217-48.

In these two systematic reviews commissioned by WHO, the authors searched for randomized trials comparing high-flow nasal cannula to conventional oxygen therapy in critically ill patients with acute hypoxemic respiratory failure, and studies evaluating droplet dispersion, aerosol generation, or infection transmission associated with high-flow nasal cannula. They did not restrict by language of publication but restricted their searches to articles published between 1 January 2007 and 14 May 2020. They included 12 randomized trials (total: 1,989 participants) for the review of acute hypoxemic respiratory failure and 7 studies for the review on aerosol generation.

**Citation:** Corley A, Rickard CM, Aitken LM, et al. [High-flow nasal cannulae for respiratory support in adult intensive care patients.](#) Cochrane Database of Systematic Reviews 2017;(5):CD010172.

In this Cochrane systematic review, the authors searched for randomized and quasi-randomized trials of high-flow nasal cannula in adult patients in intensive care units. They did not restrict their searches by language of publication but searched for articles published since 2000 in March 2016. They included 11 studies (total: 1972 participants) and identified a further 4 studies in a search in December 2016, which will be considered in an update to the review.

## Other reviews of similar topics

**Citation:** Barbateskovic M, Schjørring OL, Russo Krauss S, et al. *Higher versus lower fraction of inspired oxygen or targets of arterial oxygenation for adults admitted to the intensive care unit*. Cochrane Database of Systematic Reviews 2019;(11):CD012631.

**Citation:** Zhang Y, Fang C, Br D, et al. *Oxygen therapy for pneumonia in adults*. Cochrane Database for Systematic Reviews. 2012;(3):CD006607

## [D-Dimer levels and increased risk of death for COVID-19 patients \(search up to 16 April 2020\)](#)

Added November 3, 2020

**Citation:** Shah S, Shah K, Patel SB, et al. *Elevated D-Dimer Levels are Associated with Increased Risk of Mortality in COVID-19: A Systematic Review and Meta-Analysis*. *Cardiology in Review*. 2020 Aug 18; 10.1097/CRD.0000000000000330.

**What is this?** Laboratory tests help when assessing disease severity, defining prognosis and guiding treatment of COVID-19 patients. D-Dimer values are commonly increased in patients with COVID-19 and may provide a better understanding of disease severity.

In this rapid review, the authors searched for studies reporting admission D-dimer levels in COVID-19 patients and the effect on mortality. They restricted their searches to articles published in the English language up to 16 April 2020. They included 16 retrospective and 2 prospective studies, with a total of 3682 patients.

**What was found:** At the time of this review, the included studies showed significantly higher D-Dimer levels in patients who died compared to those who survived COVID-19, and a fourfold higher mortality risk among COVID-19 patients with positive, compared to negative D-Dimer results.

At the time of this review, the included studies showed that D-Dimer levels were higher in patients with severe COVID-19 infection compared to those with non-severe disease.

## [Transmission of SARS-CoV-2 from mother to baby is uncertain \(literature from before 15 May 2020\)](#)

Added November 3, 2020

**Citation:** Simões e Silva AC, Leal CR. *Is SARS-CoV-2 Vertically Transmitted?* *Frontiers in Pediatrics*. 2020 May 15;8:276.

**What is this?** It is important to know the possible routes of transmission of SARS-CoV-2, including whether it can be vertically transmitted from mothers to babies.

In this rapid review, the authors searched for case reports and case series for women infected with SARS-CoV-2 during pregnancy or of neonates born to infected mothers. There is no information on any restrictions in the search or the date of the search, but the article was published on 15 May 2020. The authors included 5 case series and 7 case reports.

**What was found:** At the time of this review, there was no convincing evidence of the vertical transmission of SARS-CoV-2.



[N95 respirators and surgical masks for preventing transmission of respiratory infections to healthcare workers \(multiple reviews\)](#)

Added November 3, 2020

**What is this?** Masks are worn to try to prevent the transmission of respiratory viruses and several systematic reviews have assessed the effects of healthcare workers wearing them. More details, including citations and links to the full reviews used in this summary, are available by scrolling down this summary.

**What works:** Medical masks and N95 respirators reduce the risk of respiratory infection when worn by healthcare workers.

N95 respirators provide greater protection than medical masks against some types of respiratory infection when worn by healthcare workers, but universal use of N95 respirators throughout a work shift is likely to be less acceptable because of greater discomfort.

At the time of their review, Iannone *et al.* found that N95 respirators halved the risk of any respiratory infection compared to surgical masks.

MacIntyre *et al.* reported that respirators were only effective if worn by healthcare workers throughout a work shift.

Verbeek *et al.* reported that adding tabs to grab masks may decrease the risk of contamination.

**What doesn't work:** Disposable, cotton or paper masks are not recommended for protecting healthcare workers from respiratory infection.

MacIntyre *et al.* reported that targeted use of respirators by healthcare workers for high-risk aerosol-generating procedures was not effective.

**What's uncertain:** Mukerji *et al.* reported there was insufficient economic evidence relating to the use of masks or respirators for reducing transmission of respiratory viruses. When considering the costs of these devices, costs should include those of the device itself and the associated fit testing and training.

**What are the reviews:**

**Citation:** Iannone P, Castellini G, Coclite D et al. *The need of health policy perspective to protect healthcare workers during COVID-19 pandemic. A GRADE rapid review on the N95 respirators effectiveness.* Plos One. 2020 Jun 3;15(6):e0234025.

In this rapid review, the authors searched for randomized trials comparing N95 respirators and surgical masks for preventing epidemic influenza in healthcare settings. They did not restrict their searches by language of publication and did the search on 21 March 2020. They included 3 cluster randomized trials and 1 non-inferiority study (total: 8736 healthcare worker participants).

**Citation:** Long Y, Hu T, Liu L, et al. *Effectiveness of N95 respirators versus surgical masks against influenza: A systematic review and meta-analysis.* Journal of Evidence Based Medicine 2020;13(2):93-101.

In this systematic review, the authors searched for studies comparing N95 respirators versus surgical masks among patients and healthcare workers. They did the search in January 2020 and included 6 randomized trials.

**Citation:** MacIntyre CR, Chughtai AA. *A rapid systematic review of the efficacy of face masks and respirators against coronaviruses and other respiratory transmissible viruses for the community, healthcare workers and sick patients.* International Journal of Nursing Studies. 2020 Apr 30;108:103629.

In this rapid review, the authors searched for randomized trials of the use of respiratory protection by healthcare workers, sick patients and community members. They restricted their searches to articles published in English and did the most recent search on 17 April 2020. They included 19 randomized trials, six of which related to healthcare workers.

**Citation:** Mukerji S, MacIntyre CR, Newall AT. *Review of economic evaluations of mask and respirator use for protection against respiratory infection transmission.* BMC Infectious Diseases 2015; 15: 413

In this systematic review, the authors searched for economic evaluations of mask or respirator use in August 2014. They included 7 studies.

**Citation:** Offeddu V, Yung CF, Low MSF, et al. *Effectiveness of masks and respirators against respiratory infections in healthcare workers: a systematic review and meta-analysis.* Clinical Infectious Diseases 2017;65(11):1934-42.

In this systematic review, the authors searched for studies of the effects of respiratory personal protective equipment among healthcare workers in November 2015. They identified 6 randomized trials (and included data from five of these) and 23 observational studies.

**Citation:** Smith JD, MacDougall CC, Johnstone J, et al. *Effectiveness of N95 respirators versus surgical masks in protecting health care workers from acute respiratory infection: a systematic review and meta-analysis.* Canadian Medical Association Journal 2016;188(8):567–574.

In this systematic review, the authors searched for studies comparing N95 respirators versus surgical masks in healthcare workers and others. They restricted their searches to articles published in English up to 2014. They included 3 randomized trials, 3 observational studies and 23 simulated exposure studies.

**Citation:** Verbeek JH, Rajamaki B, Ijaz S, et al. *Personal protective equipment for preventing highly infectious diseases due to exposure to contaminated body fluids in healthcare staff.* Cochrane Database of Systematic Reviews 2020;(4):CD011621.

In this Cochrane Review, the authors searched for studies of various types of personal protective equipment, including masks. They did the search in March 2020. They identified 1 randomized trial of fitting tabs to masks to help with their removal (20 participants).

# Dynamed - [COVID-19 \(Novel Coronavirus\)](#)

## Latest updates

### 18 NOV 2020

53,766,728 confirmed cases of COVID-19 including 1,308,975 deaths worldwide reported by World Health Organization (WHO) as of November 15, 2020 (WHO Weekly Epidemiological Update 2020 Nov 17)

[View in topic](#)

### 13 NOV 2020

FDA issues Emergency Use Authorization for bamlanivimab for treatment of mild-to-moderate COVID-19 in adults and children  $\geq 12$  years old weighing  $\geq 40$  kg who are at high risk of progressing to severe COVID-19 and/or hospitalization (FDA Press Release 2020 Nov 9)

[View in topic](#)

### 13 NOV 2020

FDA issues Emergency Use Authorization for cPass SARS-CoV-2 Neutralization Antibody Detection Kit to detect total neutralizing antibodies to SARS-CoV-2 in human serum and K2-EDTA plasma (FDA Press Release 2020 Nov 6)

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### 13 NOV 2020

FDA alerts health care providers about false positive results with antigen tests used for rapid detection of SARS-CoV-2 and issues recommendations to limit false positive or false negative results (FDA Letter to Health Care Providers 2020 Nov 03)

[View in topic](#)

### 12 NOV 2020

in-hospital mortality 28% in adults admitted to ICU with severe COVID-19 up to August 2020 (Chest 2020 Oct 15 early online)

[View in topic](#)

### 12 NOV 2020

45%-56% mortality reported in adults with COVID-19 who received invasive mechanical ventilation (Am J Respir Crit Care Med 2020 Oct 29)

[View in topic](#)

### 11 NOV 2020

tocilizumab might not prevent clinical worsening at 14 days in adults hospitalized with COVID-19 pneumonia (JAMA Intern Med 2020 Oct 20 early online)

[View in topic](#)

**11 NOV 2020**

addition of tocilizumab to usual care might decrease risk of composite of death and need for noninvasive or mechanical ventilation on day 14 in adults hospitalized with moderate-to-severe COVID-19 pneumonia (JAMA Intern Med 2020 Oct 20 early online)

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**10 NOV 2020**

chest CT appears to have sensitivity about 85% but very low specificity for diagnosing COVID-19 in patients with suspected COVID-19 (Cochrane Database Syst Rev 2020 Sep 30)

[View in topic](#)

**7 NOV 2020**

neutralizing monoclonal antibody against SARS-CoV-2 spike protein (LY-CoV555) at 2,800 mg might reduce viral load at 11 days in nonhospitalized adults with mild-to-moderate COVID-19 (N Engl J Med 2020 Oct 28 early online)

[View in topic](#)

**4 NOV 2020**

patient facing healthcare workers at increased risk for COVID-19 requiring hospital admission compared to general working population or non-patient facing healthcare workers (BMJ 2020 Oct 28)

[View in topic](#)

**3 NOV 2020**

lung histopathology findings reported to include diffuse alveolar damage in 88% and pulmonary microthrombi in 57% of patients with COVID-19-related death (Chest 2020 Oct 7 early online)

[View in topic](#)

## Useful Links

[BMJ – latest news and resources for COVID-19](#)

[Cochrane Library Coronavirus \(COVID-19\): evidence relevant to critical care](#)

[Elsevier - Novel Coronavirus Information Center – Elsevier](#)

[European Centre for Disease Prevention and Control](#)

[GOV.UK](#)

[Health protection Scotland](#)

[New England Journal of Medicine](#)

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