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**Literature search results**

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| **Name:** | **Search date: 17/04/2020** | **Time Taken: 90 mins** |
| **Search query:** use of CPAP (continuous positive airway pressure) in COVID 19 infection. | | |
| **Sources searched: NICE, Clinical Key, BMJ Best Practice, Cochrane, NHS England, GOV.uk, Journals and other databases.** | | |
| **Limits: None** | | |
| **Search terms used:**  **((CPAP OR NIV OR non invasive ventilation) AND** **(COVID\* or coronavirus))**  **Please let us know if you would like any additional keywords added to the search or if the search requires amending.** | | |
| **Comments about the results:**  **How?** I have used the search terms that you provided in your original request, alongside further synonyms and alternative terminology, to formulate the search strategy. I have searched the above databases and used Boolean operators to ensure the highest success rate. I have also hand sifted the final results.  **What?** I have found the following articles that I believe answer your search query. Here are some that I think are most relevant, the rest can be found at the end of this document.  **In this document you will find a selection of references, abstracts and sources of information relevant to your search request.** | | |
| **Requesting full text papers:** If you would like to consult the full text of any of the papers from the search, please email [library@uhbristol.nhs.uk](mailto:library@uhbristol.nhs.uk) with the full bibliographic details.  Please be aware that we cannot request full text papers for conference abstracts as the abstract you see is all that has been published. | | |
| **Disclaimer:** Every effort has been made to ensure that the information supplied is accurate, current and complete. However for various reasons it may not represent the entire body of information available. No responsibility can be accepted for any action taken on the basis of this information. Searching the literature retrieved the information provided. We also recommend checking the relevance and critically appraising the information contained within when applying to clinical decisions. | | |
| **Feedback:** It would be really useful for the future development of our literature search service if you could complete this short feedback survey: <https://www.surveymonkey.com/r/9PBVQKT>. | | |

**Key Results**

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| [https://www.nice.org.uk/Themes/NICE.Bootstrap/Content/niceorg/nicelogo.png](https://www.nice.org.uk/guidance) |
| [Guidance for the role and use of non-invasive respiratory support in adult patients with coronavirus (confirmed or suspected) Version 2](https://anaesthetists.org/Portals/0/PDFs/COVID-19/CLEARED_Specialty-guide_-NIV-respiratory-support-and-coronavirus-v2-26-March-003.pdf?ver=2020-04-02-082333-247) [PDF]  Source:  [Association of Anaesthetists](https://www.evidence.nhs.uk/search?om=%5b%7b%22ety%22:%5b%22Systematic%20Reviews%22%5d%7d,%7b%22ety%22:%5b%22Guidance%22%5d%7d,%7b%22ety%22:%5b%22Evidence%20Summaries%22%5d%7d,%7b%22srn%22:%5b%22Association%20of%20Anaesthetists%22%5d%7d%5d&q=CPAP+and+COVID&s=Date&sp=on) - Source:  [NHS England](https://www.evidence.nhs.uk/search?om=%5b%7b%22ety%22:%5b%22Systematic%20Reviews%22%5d%7d,%7b%22ety%22:%5b%22Guidance%22%5d%7d,%7b%22ety%22:%5b%22Evidence%20Summaries%22%5d%7d,%7b%22srn%22:%5b%22NHS%20England%22%5d%7d%5d&q=CPAP+and+COVID&s=Date&sp=on) - 26 March 2020 - Publisher: Association of Anaesthetists;NHS England  This document should be used to guide clinicians on the appropriate use of continuous positive airway pressure (CPAP), non-invasive ventilation (NIV, here referring to bilevel positive airway...  [Read Summary](https://www.evidence.nhs.uk/document?id=2226767&returnUrl=search%3fom%3d%5b%7b%22ety%22%3a%5b%22Systematic+Reviews%22%5d%7d%2c%7b%22ety%22%3a%5b%22Guidance%22%5d%7d%2c%7b%22ety%22%3a%5b%22Evidence+Summaries%22%5d%7d%5d%26q%3dCPAP%2band%2bCOVID%26s%3dDate%26sp%3don&q=CPAP+and+COVID)  [Consensus guidelines for managing the airway in patients with COVID-19](https://icmanaesthesiacovid-19.org/s/Adult-Airway-Guidelines.pdf) [PDF]  Source:  [Association of Anaesthetists](https://www.evidence.nhs.uk/search?om=%5b%7b%22ety%22:%5b%22Systematic%20Reviews%22%5d%7d,%7b%22ety%22:%5b%22Guidance%22%5d%7d,%7b%22ety%22:%5b%22Evidence%20Summaries%22%5d%7d,%7b%22srn%22:%5b%22Association%20of%20Anaesthetists%22%5d%7d%5d&ps=250&q=CPAP+and+COVID&s=Date&sp=on) - Source:  [Intensive Care Society - ICS](https://www.evidence.nhs.uk/search?om=%5b%7b%22ety%22:%5b%22Systematic%20Reviews%22%5d%7d,%7b%22ety%22:%5b%22Guidance%22%5d%7d,%7b%22ety%22:%5b%22Evidence%20Summaries%22%5d%7d,%7b%22srn%22:%5b%22Intensive%20Care%20Society%20-%20ICS%22%5d%7d%5d&ps=250&q=CPAP+and+COVID&s=Date&sp=on) - Source:  [Royal College of Anaesthetists](https://www.evidence.nhs.uk/search?om=%5b%7b%22ety%22:%5b%22Systematic%20Reviews%22%5d%7d,%7b%22ety%22:%5b%22Guidance%22%5d%7d,%7b%22ety%22:%5b%22Evidence%20Summaries%22%5d%7d,%7b%22srn%22:%5b%22Royal%20College%20of%20Anaesthetists%22%5d%7d%5d&ps=250&q=CPAP+and+COVID&s=Date&sp=on) - 19 March 2020 - Publisher: Royal College of Anaesthetists (RCoA);Difficult Airway Society (DAS);Association of Anaesthetists;Intensive Care Society;Faculty of Intensive Care Medicine  Coronavirus disease 2019 (COVID-19), is highly contagious. Airway management of patients with COVID-19 is high risk to staff and patients. We aimed to develop principles for airway management of... |
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| http://connect/NewTeachingandLearning/libraryandinformationservice/PublishingImages/clinical%20key%20trial%20connect.jpg **Dynamed/BMJ Best Practice** |
| [Results from BMJ Best Practice](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach)  Severe COVID-19: high flow nasal oxygen/non-invasive ventilation  Provide advanced oxygen or non-invasive ventilation in patients who are deteriorating and failing to respond to standard oxygen therapy.[[3]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop3) Follow local infection prevention and control procedures to prevent transmission to healthcare workers, especially when performing aerosol-generating procedures. Novel methods to protect clinicians without access to standard personal protective equipment during aerosol-generating procedures have been suggested (e.g., aerosol box, plastic drapes, helmet devices).[[233]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop233)[[234]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop234)[[235]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop235)  Consider a trial of high-flow nasal oxygen or non-invasive ventilation (e.g., continuous positive airway pressure [CPAP] or bilevel positive airway pressure [BiPAP]) in patients with hypoxaemic respiratory failure.[[3]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop3)[[224]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop224) These procedures may avoid the need for intubation and mechanical ventilation; however, they have a higher risk of aerosol generation.[[236]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop236)  There is ongoing debate about the optimal mode of respiratory support before mechanical ventilation, and you should check local guidelines for preferred options.[[237]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop237) NHS England recommends CPAP as the preferred form of non-invasive ventilation, and doesn't advocate the use of high-flow nasal oxygen based on a lack of efficacy, oxygen use, and infection spread. High-flow oxygen delivery can place a strain on oxygen supplies with the risk of site supply failure. Early CPAP may provide a bridge to invasive mechanical ventilation. Use of BiPAP should be reserved for patients with hypercapnic acute or chronic ventilatory failure.[[238]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop238)  Monitor patients closely for clinical deterioration that could result in the need for urgent intubation.[[3]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop3) Patients with lower PaO₂/fraction of inspired oxygen (FiO₂) were more likely to experience failure with high-flow nasal oxygen and require ventilation in one study.[[239]](https://bestpractice.bmj.com/topics/en-gb/3000168/management-approach#referencePop239)  **Results from Clinical Key** [Acute Respiratory Failure and Continuous Positive Airway Pressure Therapy in Patients With Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) Infection: a Real Life Evaluation](https://www.clinicalkey.com/#!/content/24-s2.0-NCT04307459) [Clinical Trial]  [Dexamethasone and Oxygen Support Strategies in ICU Patients With Covid-19 pneumonia\_COVIDICUS](https://www.clinicalkey.com/#!/content/24-s2.0-NCT04344730) [Clinical Trial]  [NIV and CPAP Failure Predictors in COVID-19 Associated Respiratory Failure](https://www.clinicalkey.com/#!/content/24-s2.0-NCT04342104) [Clinical Trial]  [EC-COVID-PCS - Early CPAP in COVID Patients With Respiratory Failure. A Prospective Cohort Study.](https://www.clinicalkey.com/#!/content/24-s2.0-NCT04323878) [Clinical Trial]  [The "helmet bundle" in COVID-19 patients undergoing non invasive ventilation.](https://www.clinicalkey.com/#!/content/2-s2.0-32249028) [MEDLINE®] Lucchini, Alberto, Giani, Marco, Isgrò, Stefano, Rona, Roberto, Foti, Giuseppe  [EC-COVID-RCT. Early CPAP in COVID Patients With Respiratory Failure. A Randomized Clinical Trial](https://www.clinicalkey.com/#!/content/24-s2.0-NCT04326075) [Clinical Trial]  [Therapeutic and triage strategies for 2019 novel coronavirus disease in fever clinics](https://www.clinicalkey.com/#!/content/1-s2.0-S2213260020300710) [Journal] Zhang, Jinnong, Zhou, Luqian, Yang, Yuqiong, Peng, Wei, Wang, Wenjing, Chen, Xuelin Lancet Respiratory Medicine, The, 2020-03-01 , Volume 8, Issue 3, Pages e11-e12 Copyright © 2020 Elsevier Ltd  [Novel coronavirus disease (COVID-19): a pandemic (epidemiology, pathogenesis and potential therapeutics)](https://www.clinicalkey.com/#!/content/1-s2.0-S2052297520300317) [Journal] Hamid, Saima, Mir, Mohammad Yaseen, Rohela, Gulab Khan New Microbes and New Infections, 2020-05-01 , Volume 35, Article Number 100679 Copyright © 2020  [Respiratory support for patients with COVID-19 infection](https://www.clinicalkey.com/#!/content/1-s2.0-S2213260020301107) [Journal] Ñamendys-Silva, Silvio A Lancet Respiratory Medicine, The, 2020-04-01 , Volume 8, Issue 4, Pages e18-e18 Copyright © 2020 Elsevier Ltd |
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| [http://www.cochranelibrary.com/application/static/images/Cochrane_Logo.png](http://www.cochranelibrary.com/) |
| [Prone position for acute respiratory failure in adults (Review)](http://cochranelibrary-wiley.com/doi/10.1002/14651858.CD008095.pub2/full)(Cochrane Collaboration (Wiley)  [High‐flow nasal cannulae for respiratory support in adult intensive care patients](https://www.cochranelibrary.com/en/cdsr/doi/10.1002/14651858.CD010172.pub2/full/en)  High‐flow nasal cannulae (HFNC) deliver high flows of blended humidified air and oxygen via wide‐bore nasal cannulae and may be useful in providing respiratory support for adult patients experiencing acute respiratory failure in the intensive care unit (ICU). This review assesses the safety and efficacy of HFNC versus comparator interventions in terms of treatment failure, mortality, adverse events, and duration of respiratory support, hospital and ICU length of stay, respiratory effects, patient‐reported outcomes, and costs of treatment. Associated Cochrane Clinical Answer: [How does a high‐flow nasal cannula compare with low‐flow oxygen for adults in intensive care requiring respiratory support?](https://www.cochranelibrary.com/cca/doi/10.1002/cca.1837/full) |
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| **Guidelines** |
| **Guidance for the role and use of non-invasive respiratory support in adult patients with COVID19 (confirmed or suspected).**  <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/specialty-guide-NIV-respiratory-support-and-coronavirus-v3.pdf>  **Specialty guide for critical care**  <https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/C0216_Specialty-guide_AdultCritiCare-and-coronavirus_V2_-8-April.pdf> |

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| **Database results and Grey Literature** |
| [Treatment for severe acute respiratory distress syndrome from COVID-19](http://www.sciencedirect.com/science/article/pii/S2213260020301272)  [Intensive care management of coronavirus disease 2019 (COVID-19): challenges and recommendations](https://www.thelancet.com/action/showPdf?pii=S2213-2600%2820%2930161-2)  **Source Cardiology journal -** [COVID-19 challenge for modern medicine.](https://hdas.nice.org.uk/strategy/839092/3/Medline/32286679)  Author(s) Dzieciatkowski, Tomasz et al Apr 2020  [Available in full text at Cardiology journal from EBSCO (MEDLINE Complete)](http://search.ebscohost.com/login.aspx?direct=true&scope=site&site=ehost-live&db=mdc&AN=32286679)  [Available in full text at Cardiology journal from Unpaywall](https://journals.viamedica.pl/cardiology_journal/article/download/CJ.a2020.0055/50658)  Non-invasive ventilation and high-flow nasal oxygen therapy can be applied in mild and moderate non-hypercapnia cases. A lung-saving ventilation strategy must be implemented in acute respiratory distress syndrome and mechanically ventilated patients. Extracorporeal membrane oxygenation is a highly specialized method, available only in selected centers and not applicable to a significant number of cases.  **European Respiratory Journal** - [Exhaled air dispersion during high-flow nasal cannula therapy versus CPAP via different masks](https://erj.ersjournals.com/content/53/4/1802339)  David S. Hui et al 2019 53: 1802339; DOI: 10.1183/13993003.02339-2018  **FDA** - [Enforcement Policy for Ventilators and Accessories and Other Respiratory Devices During the Coronavirus Disease 2019 (COVID-19) Public Health Emergency Guidance for Industry and Food and Drug Administration Staff](https://www.fda.gov/media/136318/download)  March 2020 See page 7/8  **National Academy of Medicine** - [Duty to Plan: Health Care, Crisis Standards of Care, and Novel Coronavirus SARS-CoV-2](https://nam.edu/duty-to-plan-health-care-crisis-standards-of-care-and-novel-coronavirus-sars-cov-2/)  5 March Discussion paper  The paper referenced in it is Wang, D., B. Hu, C. Hu, F. Zhu, X. Liu, J. Zhang, B. Wang, H. Xiang, Z. Cheng, Y. Xiong, Y. Zhao, Y. Li, X. Wang, and Z. Peng. 2020. Clinical characteristics of 138 hospitalized patients with 2019 novel coronavirus-infected pneumonia in Wuhan, China. JAMA. <https://doi.org/10.1001/jama.2020.1585>.  **World Federation of Societies of Anaesthesiologists** - [Coronavirus - guidance for anaesthesia and perioperative care providers](https://www.wfsahq.org/resources/coronavirus) state: The use of high-flow nasal oxygenation and mask CPAP or BiPAP should be avoided due to greater risk of aerosol generation.  **Intensive Care Society of Ireland** - [Management of the critically ill patient with confirmed or suspected COVID-19](https://www.hse.ie/eng/about/who/cspd/ncps/critical-care/management-of-the-critically-ill-patient-with-confirmed-or-suspected-covid-19.pdf) (slides – 19 March – see entries on Respiratory Support and Suggested ARDS Mechanical Ventilation Protocol  **StatPearls** - [Features, Evaluation and Treatment Coronavirus (COVID-19)](https://www.ncbi.nlm.nih.gov/books/NBK554776/) – 8 March  Intensive Care Lead for High Consequence Infectious Diseases, Royal Free Hospital, London, based on a teleconference to consolidate experiences about Covid 19: <https://www.facebook.com/permalink.php?id=103930280957826&story_fbid=217689892915197> NOT EVIDENCE BASED  **Blogs etc…**  **ESM Airway Management** - [Airway management adjustments in the era of COVID-19](https://www.ems1.com/ems-products/medical-equipment/airway-management/articles/airway-management-adjustments-in-the-era-of-covid-19-0RrHWNl1MpLw95dY/) – 21 March 2020  **AASM** - [Coronavirus FAQs: CPAP tips for sleep apnea patients](https://aasm.org/coronavirus-covid-19-faqs-cpap-sleep-apnea-patients/) – 17 March 2020  **EmCrit blog** - [PulmCrit Wee- Could the best mode of noninvasive support for COVID-19 be… CPAP ??](https://emcrit.org/pulmcrit/cpap-covid/" \t "_blank) – 17 March 2020  **REBEL EM** - [COVID-19: A Powerful Message from Italy](https://rebelem.com/covid-19-a-powerful-message-from-italy/) – 20 March 2020  **Mike’s blog** - [CPAP for COVID](https://blog.plan99.net/cpap-for-covid-d47886bf978c) – 21 March 2020  **CoronaVirus Today** - [Can Sleep Apnea Machines Treat COVID-19 Patients?](https://www.coronavirustoday.com/cpap-machines-treat-sleep-apnea) – 15 March 2020 |