**Clinical Librarian Service Search Results**

**Request:** Is there any literature concerning silent hypoxia in COVID-19?

**Summary**

A search of good quality resources has retrieved a small number of documents regarding silent hypoxia in COVID-19.

Primary care guidance (NHS London Clinical Networks/NHS England, 2020)1, recognises the potential for silent hypoxia and the articles retrieved during the search primarily also recognise the potential for this presentation. However, as yet, few robust reports providing more detail on prevalence, management and outcomes of this presentation appear to have been published.

The results listed below are split into two sections. The first section1-7 provides details of guidance, articles and letters retrieved during the search. The second section8-11 provides a selection of media reports of silent hypoxia in COVID-19. At present, the results only include papers related to COVID-19. If literature addressing silent hypoxia in other conditions/situations (e.g. aviation literature) would be of use, this can easily be supplied.

I hope that I have interpreted your request correctly. Please let me know if you would like me to search further.

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**Accessing Articles**

Links are provided where online access to the full-text is available. An OpenAthens username and password may be required for online access to articles. You can register for one here: <https://openathens.nice.org.uk/>

Unfortunately there may occasionally be some problems accessing the links provided. In this case the items can be accessed via the Library Journals link: <http://journals.nice.org.uk/>. [Log in to OpenAthens via the link in the top tight-hand corner].

If the full-text is not available, you can request an Inter-Library Loan freely and directly via our Inter-Library Loans system: CLIO. Register for CLIO (using your library membership number) at: [https://derbyill.cliohosting.co.uk](https://derbyill.cliohosting.co.uk/). Further information can be found at: <http://www.uhdblibrary.co.uk/ills>.

**Feedback**

Once you have read this report, I would appreciate it if you would complete our online literature search feedback form at:

<https://www.smartsurvey.co.uk/s/LiteratureSearchFeedback20202021/>

This relates to this specific search and will help us to monitor and improve our service.

Many Thanks.

Lisa Lawrence

Clinical Librarian

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ext. 88155

**Current at:** 28th April 2020.

**Time taken for search:** 4 hours.

**Please acknowledge this work in any resulting paper or presentation as:**

Evidence Search: LS27 Silent hypoxia in COVID-19. Lisa Lawrence. (28/04/2020). Derby, UK: University Hospitals of Derby & Burton NHS Foundation Trust Library and Knowledge Service.

**Disclaimer:** Please note that the information supplied by the Library and Knowledge Service in response to a literature search is for information purposes only. Every reasonable effort will be made to ensure that this information is accurate, up-to-date and complete. However, it is possible that it may not be representative of the whole body of evidence. No responsibility can be accepted by the Library for any action taken on the basis of this information.

Guidance or information relating to specific drug queries or procedures should be referred to Medicines Information on RDH ext. 85379 or Burton ext. 5168 or 5101.

Email: [UHDB.MedicinesInformation@nhs.net](mailto:UHDB.MedicinesInformation@nhs.net)

For local UHDB guidelines and policies please refer to the red button on the Trust intranet, or [**https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-main.pl**](https://derby.koha-ptfs.co.uk/cgi-bin/koha/opac-main.pl)

**Results: Guidance, Articles & Letters**

1. **Primary Care and Community Respiratory Resource pack for use during COVID-19**

**Date:** Version 3. Circulated date 16 April 2020. Agreed date: 16 April 2020. Review date: 23 April 2020.

See Appendix 1.

**Source:** NHS London Clinical Networks. NHS England.

**Full Text/URL:**

<https://www.pcrs-uk.org/sites/pcrs-uk.org/files/resources/COVID19/NHS-London-Primary-and-Community-Care-Respiratory-Resource-Pack-during-COVID-19-V3final-160420.pdf>

1. **COVID-19 patients with respiratory failure: what can we learn from aviation medicine?**

**Author(s):** Ottestad W, et al.

**Citation:** British Journal of Anaesthesia, Volume 0, Issue 0, epub: published ahead of print.

**Source:** Google.

**Full Text/URL:** <https://bjanaesthesia.org/article/S0007-0912(20)30226-9/fulltext>

1. **COVID-19 with silent hypoxemia.**

**Author(s):** Ottestad W, et al.

**Citation:** Tidsskr Nor Legeforen. (Journal of the Norwegian Medical Association). 21 April 2020. Doi: 10.4045/tidsskr.20.0299.

**Source:** Google Scholar.

**Full Text/URL:**

<https://tidsskriftet.no/en/2020/04/kort-kasuistikk/covid-19-silent-hypoxemia>

1. **Critical care crisis and some recommendations during the COVID-19 epidemic in China.**

**Author(s):** Xie, Jianfeng; Tong, Zhaohui; Guan, Xiangdong; Du, Bin; Qiu, Haibo; Slutsky, Arthur S

**Source:** Intensive care medicine; Mar 2020

**Publication Type(s):** Journal Article

**PubMedID:** 32123994

**Extract:** *“Additionally, many patients that go on to develop respiratory failure had hypoxemia but without signs of respiratory distress, especially in the elderly patients (“silent hypoxemia”)”.*

Available at [Intensive care medicine](https://link.springer.com/content/pdf/10.1007/s00134-020-05979-7.pdf) - from Unpaywall

**Database:** Medline

1. **COVID-19 pneumonia: different respiratory treatment for different phenotypes?**

**Author(s):** Gattinoni L. et al.

**Citation:** Intensive Care Medicine; 2020. Epub ahead of print. DOI: 10.1007/s00134-020-06033-2

**Extract:** *“Yet, COVID-19 pneumonia [2], despite falling in most of the circumstances under the Berlin definition of ARDS [3], is a specific disease, whose distinctive features are severe hypoxemia often associated with near normal respiratory system compliance (more than 50% of the 150 patients measured by the authors and further confirmed by several colleagues in Northern Italy). This remarkable combination is almost never seen in severe ARDS. These severely hypoxemic patients despite sharing a single etiology (SARS-CoV-2) may present quite differently from one another: normally breathing (“silent” hypoxemia) or remarkably dyspneic; quite responsive to nitric oxide or not; deeply hypocapnic or normo/hypercapnic; and either responsive to prone position or not. Therefore, the same disease actually presents itself with impressive non-uniformity”.*

**Source:** Google Scholar.

**Full Text/URL:**

<https://link.springer.com/content/pdf/10.1007/s00134-020-06033-2.pdf>

<https://www.esicm.org/wp-content/uploads/2020/04/684_author-proof.pdf>

1. **Respiratory support for adult patients with COVID-19.**

**Author(s):** Whittle JS, Pavlov I, Sacchetti AD, Atwood C, Rosenberg MS.

**Citation:** JACEP Open. 2020; 1: 95-101. Doi: 10.1002/emp2.12071.

**Extract:** *“Importantly, observers in China have identified the presence of hypoxemia without signs of respiratory distress (silent hypoxemia), especially in elderly populations. During any respiratory management, patients should regularly be monitored and checked for respiratory deterioration to prevent this occurrence”.*

**Source:** Google Scholar.

**Full Text/URL:** <https://onlinelibrary.wiley.com/doi/epdf/10.1002/emp2.12071>

1. **First atypical case of 2019 novel coronavirus in Yan’an, China.**

**Author(s):** Hao W, Li M, Huang X.

**Citation:** Article In Press. Published 19 Feb 2020. DOI: 10.1016/j.cmi.2020.02.011

**Publication Type(s):** Case Report.

Available at:

<https://www.clinicalmicrobiologyandinfection.com/action/showPdf?pii=S1198-743X%2820%2930091-4>

**Source:** LitCovid.

**Results: Anecdotal/Press Reports**

1. ‘**Silent Hypoxics’: Docs warn of coronavirus link to mysterious low oxygen symptoms.**

**Author(s):** Abdelmalek M, Bhatt J.

**Date:** April 28, 2020.

**Source:** Google.

**Full Text/URL:**

<https://abcnews.go.com/Health/silent-hypoxics-docs-warn-coronavirus-link-mysterious-low/story?id=70366959>

1. **‘Silent Hypoxia’ may be killing COVID-19 patients, but there’s hope.**

**Author(s):** Pappas S.

**Date:** April 28, 2020.

**Source:** Google.

**Full Text/URL:**

<https://www.foxnews.com/science/silent-hypoxia-may-be-killing-covid-19-patients-but-theres-hope>

1. **‘Silent Hypoxia’ Is Making Some Coronavirus Patients ritically Ill – Here’s Why It’s So Dangerous.**

**Author(s):** Gillespie, C.

**Date:** April 23, 2020.

**Source:** Google.

**Full Text/URL:**

<https://www.health.com/condition/infectious-diseases/coronavirus/silent-hypoxia>

1. **The Infection That’s Silently Killing Coronavirus Patients.**

**Author(s):** Levitan R.

**Date:** April 20, 2020.

**Source:** Google.

**Full Text/URL:**

<https://www.nytimes.com/2020/04/20/opinion/sunday/coronavirus-testing-pneumonia.html>

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**Databases searched:**

* + **Healthcare Databases:** MEDLINE, EMBASE, PubMed, NICE Evidence.
  + **Other:** Google, Google Scholar, World Health Organization Database of publications on coronavirus disease (COVID-19), LitCOVID, MedRxiv.

**Local Guidance:** Local guidance has not been searched as part of this literature search. However, local guidelines, policies and procedures are available via the red button on the intranet.

**Search Terms:**

|  |  |
| --- | --- |
| ***Subject Headings*** | ***Free Text Words*** |
| Coronavirus Infection | 2019-nCoV |
| Coronavirus Infections | 2019nCoV |
| Hypoxia | Asymptomatic |
|  | Atypical |
|  | Atypical ADJ9 hypoxia |
|  | Breathless\* |
|  | COVID-19 |
|  | “Corona virus” |
|  | Coronavirus |
|  | Happy hypox\* |
|  | Hypcapnic hypoxia |
|  | nCoV |
|  | “novel CoV” |
|  | “novel coronavirus” |
|  | MERS-CoV |
|  | “Middle East Respiratory Syndrome” |
|  | Respir\* rate |
|  | SaO2 |
|  | SARS-CoV |
|  | SARS-CoV-2 |
|  | Sarscov2 |
|  | “Severe Acute Respiratory Syndrome” |
|  | Silent hypox\* |
|  | “Silent hypoxia” |
|  | Silent hypoxia |
|  | Silent ADJ9 hypoxia |
|  | SpO2 |

**Reviewer’s note (22/05/2020):** For a wider search, and as terms for silent hypoxia can vary widely in the literature, you could also consider using just hypox\* as a free text search term. You could go even wider and include hypoxaemia/hypoxemia as free text search terms. Hypoxaemia is not the same condition as hypoxia, however, sometimes these terms are used interchangeably.

**Search Limits:** English language.

**Search History:**

**Search Example:**

|  |  |  |  |
| --- | --- | --- | --- |
| **#** | **Database** | **Search term** | **Results** |
| 1 | Medline | ("silent hypoxia").ti,ab | 0 |
| 2 | Medline | COVID-19 OR coronavirus OR "Corona virus" OR 2019-nCoV OR SARS-CoV OR MERS-CoV OR "Severe Acute Respiratory Syndrome" OR "Middle East Respiratory Syndrome" OR "novel CoV" OR "novel coronavirus" OR SARS-CoV-2 OR sarscov2 OR 2019nCoV OR (nCOV).ti,ab | 23588 |
| 3 | Medline | (silent hypoxia).ti,ab | 177 |
| 4 | Medline | (2 AND 3) | 0 |
| 5 | Medline | exp HYPOXIA/ | 66419 |
| 6 | Medline | (asymptomatic).ti,ab | 150097 |
| 7 | Medline | (breathless\*).ti,ab | 4979 |
| 8 | Medline | (respir\* rate).ti,ab | 71412 |
| 9 | Medline | (2 AND 5) | 22 |
| 10 | Medline | (6 OR 7 OR 8) | 225608 |
| 11 | Medline | (9 AND 10) | 3 |
| 12 | Medline | exp "CORONAVIRUS INFECTIONS"/ | 10964 |
| 13 | Medline | (2 OR 12) | 24095 |
| 14 | Medline | (1 AND 13) | 0 |
| 15 | Medline | (5 AND 13) | 22 |
| 16 | EMBASE | ("Silent hypoxia").ti,ab | 1 |
| 17 | EMBASE | COVID-19 OR coronavirus OR "Corona virus" OR 2019-nCoV OR SARS-CoV OR MERS-CoV OR "Severe Acute Respiratory Syndrome" OR "Middle East Respiratory Syndrome" OR "novel CoV" OR "novel coronavirus" OR SARS-CoV-2 OR sarscov2 OR 2019nCoV OR (nCOV).ti,ab | 29974 |
| 18 | EMBASE | (Silent hypoxia).ti,ab | 1 |
| 19 | EMBASE | exp "CORONAVIRUS INFECTION"/ | 12393 |
| 20 | EMBASE | (17 OR 19) | 30461 |
| 21 | EMBASE | exp HYPOXIA/ | 120861 |
| 22 | EMBASE | (20 AND 21) | 68 |
| 23 | EMBASE | (hypocapnic hypoxia).ti,ab | 97 |
| 24 | EMBASE | (20 AND 23) | 0 |
| 25 | EMBASE | (happy hypox\*).ti,ab | 0 |
| 26 | Medline | (hypocapnic hypoxia).ti,ab | 188 |
| 27 | Medline | (happy hypox\*).ti,ab | 0 |
| 28 | Medline | (13 AND 26) | 0 |
| 29 | Medline | (SaO2 OR SpO2).ti,ab | 8111 |
| 30 | Medline | (13 AND 29) | 15 |
| 31 | Medline | (atypical ADJ9 hypoxia).ti,ab | 34 |
| 32 | Medline | 13 AND 31 | 0 |

**Search Date: 28/04/2020**

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