

**Literature search results**

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| **Please find enclosed the results for your literature search request.**  **Please feel free to contact me if you need any further help or if you would like to order any of the articles in full text.** |

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| **Search reference number** | 5034 | **Search completed on** | 27/05/2020 |
| **Search completed for** |  | | |
| **Search completed by** | Eva Thackeray (extension 4763, email [eva.thackeray@lthtr.nhs.uk](mailto:eva.thackeray@lthtr.nhs.uk)) | | |

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| **Search question** |
| Personal protective equipment use in COVID 19 and aerosol generating procedures. |

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| **Search strategy** |
| Resources used: Google, Public Health England, NICE Evidence Search, PubMed, Embase, WHO Covid-19 database |
| Search terms: See full strategy below, as requested. |
| Limits: 2015-2020, English |

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| **Summary** |
| **Overview of results**  This topic has generated a large debate because there is no definitive consensus on which procedures are aerosol-generating procedures. To get an overview, I suggest you look at the Public Health England (PHE) guidance first. If you look at the other results after that, however, you will see that many professional associations argue for the inclusion of other procedures that are not in the PHE guidance.  See below (page 5 onwards) for guidance and reports, listed in date order with the most recent first. You can re-sort the table, by source for example, if you wish; if you need help with this, please let me know.  Journal articles are listed separately in the PubMed and Embase attachments. As requested, I have also saved the article results as RIS files, so that you can import them into your referencing software, e.g. Endnote.  If you need further help with this topic, please feel free to contact me.  **Search strategy**  I searched Google, Public Health England, NICE Evidence Search and the WHO Covid-19 database with various combinations of the following terms:  Covid, aerosol generating procedures, PPE  PubMed  For the Covid-19 search terms, I adapted a search strategy developed by NICE (<https://kfh.libraryservices.nhs.uk/wp-content/uploads/2020/04/COVID-saved-searches-current-strategies-shareable.docx>)  *Covid-19*  (covid\*[tiab] OR coronavirus\*[tiab] OR coronovirus\*[tiab] OR coronavirinae\*[tiab] OR CoV[tiab] OR "2019-nCoV"[tiab] OR 2019nCoV[tiab] OR nCoV2019[tiab] OR "nCoV-2019"[tiab] OR "COVID-19"[tiab] OR COVID19[tiab] OR "CORVID-19"[tiab] OR CORVID19[tiab] OR "WN-CoV"[tiab] OR WNCoV[tiab] OR "HCoV-19"[tiab] OR HCoV19[tiab] OR 2019 novel\*[tiab] OR Ncov[tiab] OR "n-cov"[tiab] OR "SARS-CoV-2"[tiab] OR "SARSCoV-2"[tiab] OR "SARSCoV2"[tiab] OR "SARS-CoV2"[tiab] OR SARSCov19[tiab] OR "SARS-Cov19"[tiab] OR "SARSCov-19"[tiab] OR "SARS-Cov-19"[tiab] OR Ncovor[tiab] OR Ncorona\*[tiab] OR Ncorono\*[tiab] OR NcovWuhan\*[tiab] OR NcovHubei\*[tiab] OR NcovChina\*[tiab] OR NcovChinese\*[tiab] OR SARS2[tiab] OR "SARS-2"[tiab] OR SARScoronavirus2[tiab] OR "SARS-coronavirus-2"[tiab] OR "SARScoronavirus 2"[tiab] OR "SARS coronavirus2"[tiab] OR SARScoronovirus2[tiab] OR "SARS-coronovirus-2"[tiab] OR "SARScoronovirus 2"[tiab] OR "SARS coronovirus2"[tiab] OR "severe acute respiratory syndrome\*"[tiab] OR "Coronavirus"[Mesh] OR "Coronavirus Infections"[Mesh] OR "COVID-19"[Supplementary Concept] ) = 38084  *PPE*  ppe[tiab] OR "personal protective equipment"[tiab] OR "Personal Protective Equipment"[Mesh] = 34038  *Aerosol generating procedures*  aerosol\*[tiab] OR airborne[tiab] OR "Aerosols"[Mesh] = 74053  *Covid-19 + PPE + Aerosol generating procedures*  ((covid\*[tiab] OR coronavirus\*[tiab] OR coronovirus\*[tiab] OR coronavirinae\*[tiab] OR CoV[tiab] OR "2019-nCoV"[tiab] OR 2019nCoV[tiab] OR nCoV2019[tiab] OR "nCoV-2019"[tiab] OR "COVID-19"[tiab] OR COVID19[tiab] OR "CORVID-19"[tiab] OR CORVID19[tiab] OR "WN-CoV"[tiab] OR WNCoV[tiab] OR "HCoV-19"[tiab] OR HCoV19[tiab] OR 2019 novel\*[tiab] OR Ncov[tiab] OR "n-cov"[tiab] OR "SARS-CoV-2"[tiab] OR "SARSCoV-2"[tiab] OR "SARSCoV2"[tiab] OR "SARS-CoV2"[tiab] OR SARSCov19[tiab] OR "SARS-Cov19"[tiab] OR "SARSCov-19"[tiab] OR "SARS-Cov-19"[tiab] OR Ncovor[tiab] OR Ncorona\*[tiab] OR Ncorono\*[tiab] OR NcovWuhan\*[tiab] OR NcovHubei\*[tiab] OR NcovChina\*[tiab] OR NcovChinese\*[tiab] OR SARS2[tiab] OR "SARS-2"[tiab] OR SARScoronavirus2[tiab] OR "SARS-coronavirus-2"[tiab] OR "SARScoronavirus 2"[tiab] OR "SARS coronavirus2"[tiab] OR SARScoronovirus2[tiab] OR "SARS-coronovirus-2"[tiab] OR "SARScoronovirus 2"[tiab] OR "SARS coronovirus2"[tiab] OR "severe acute respiratory syndrome\*"[tiab] OR "Coronavirus"[Mesh] OR "Coronavirus Infections"[Mesh] OR "COVID-19"[Supplementary Concept] )) AND (ppe[tiab] OR "personal protective equipment"[tiab] OR "Personal Protective Equipment"[Mesh]) AND (aerosol\*[tiab] OR airborne[tiab] OR "Aerosols"[Mesh]) = 148  With the Filter: English applied = 139  *Covid-19 + PPE*  I checked this combination too, to make sure I had not missed any broader guidelines or articles.  (covid\*[tiab] OR coronavirus\*[tiab] OR coronovirus\*[tiab] OR coronavirinae\*[tiab] OR CoV[tiab] OR "2019-nCoV"[tiab] OR 2019nCoV[tiab] OR nCoV2019[tiab] OR "nCoV-2019"[tiab] OR "COVID-19"[tiab] OR COVID19[tiab] OR "CORVID-19"[tiab] OR CORVID19[tiab] OR "WN-CoV"[tiab] OR WNCoV[tiab] OR "HCoV-19"[tiab] OR HCoV19[tiab] OR 2019 novel\*[tiab] OR Ncov[tiab] OR "n-cov"[tiab] OR "SARS-CoV-2"[tiab] OR "SARSCoV-2"[tiab] OR "SARSCoV2"[tiab] OR "SARS-CoV2"[tiab] OR SARSCov19[tiab] OR "SARS-Cov19"[tiab] OR "SARSCov-19"[tiab] OR "SARS-Cov-19"[tiab] OR Ncovor[tiab] OR Ncorona\*[tiab] OR Ncorono\*[tiab] OR NcovWuhan\*[tiab] OR NcovHubei\*[tiab] OR NcovChina\*[tiab] OR NcovChinese\*[tiab] OR SARS2[tiab] OR "SARS-2"[tiab] OR SARScoronavirus2[tiab] OR "SARS-coronavirus-2"[tiab] OR "SARScoronavirus 2"[tiab] OR "SARS coronavirus2"[tiab] OR SARScoronovirus2[tiab] OR "SARS-coronovirus-2"[tiab] OR "SARScoronovirus 2"[tiab] OR "SARS coronovirus2"[tiab] OR "severe acute respiratory syndrome\*"[tiab] OR "Coronavirus"[Mesh] OR "Coronavirus Infections"[Mesh] OR "COVID-19"[Supplementary Concept] ) AND (ppe[ti] OR "personal protective equipment"[ti] OR "Personal Protective Equipment"[Majr]) Filters: English, from 2015 – 2020 = 174  PTO for the Embase strategy  Embase   |  |  |  |  | | --- | --- | --- | --- | | # | Database | Search term | Results | | 1 | EMBASE | (covid\* OR coronavirus\* OR coronovirus\* OR coronavirinae\* OR CoV 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 "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\* OR SARS2 OR "SARS-2" OR SARScoronavirus2 OR "SARS-coronavirus-2" OR "SARScoronavirus 2" OR "SARS coronavirus2" OR SARScoronovirus2 OR "SARS-coronovirus-2" OR "SARScoronovirus 2" OR "SARS coronovirus2" OR "severe acute respiratory syndrome\*").ti,ab | 33071 | | 2 | EMBASE | exp CORONAVIRINAE/ | 14361 | | 3 | EMBASE | exp "CORONAVIRUS INFECTION"/ | 13570 | | 4 | EMBASE | (1 OR 2 OR 3) | 41450 | | 5 | EMBASE | (ppe OR "personal protective equipment").ti,ab | 6827 | | 6 | EMBASE | exp "PROTECTIVE EQUIPMENT"/ | 53612 | | 7 | EMBASE | (5 OR 6) | 57744 | | 8 | EMBASE | (aerosol\* OR airborne).ti,ab | 82986 | | 9 | EMBASE | exp AEROSOL/ | 52827 | | 10 | EMBASE | (8 OR 9) | 99769 | | 11 | EMBASE | (4 AND 7 AND 10) | 178 | | 12 | EMBASE | 11 [DT 2015-2020] [English language] | 137 | | 13 | EMBASE | (ppe OR "personal protective equipment").ti | 837 | | 14 | EMBASE | \*"PROTECTIVE EQUIPMENT"/ | 4529 | | 15 | EMBASE | (13 OR 14) | 4897 | | 16 | EMBASE | (4 AND 15) | 204 | | 17 | EMBASE | 16 NOT 11 | 167 | | 18 | EMBASE | 17 [DT 2015-2020] [English language] | 145 | |

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| **Literature search results**  See also the attached list(s) of journal articles | | | |
| **Source** | **Study type** | **Date** | **Details** | |
| Royal College of Speech and Language Therapists | Statement | 22 May 2020 | **RCSLT Statement: PPE and aerosol generating procedures**  <https://www.rcslt.org/-/media/docs/Covid/RCSLT-PPE-and-AGP-Statement-22May.pdf?la=en&hash=18582D85D04C747F7CE5EAA040A883E7BF47F73C> | |
| Public Health England | Guidance | 21 May 2020 | **COVID-19: infection prevention and control (IPC)**  <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control>  Note the following in particular:   1. **COVID-19: infection prevention and control guidance** <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/886668/COVID-19_Infection_prevention_and_control_guidance_complete.pdf> especially pages 32-33: ‘5.8.1 Aerosol generating procedures’ 2. **COVID-19: infection prevention and control guidance Appendix 2** <https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/886370/COVID-19_Infection_prevention_and_control_guidance_Appendix_2.pdf> especially page 4: ‘Recommended PPE for healthcare workers by secondary care inpatient clinical setting, NHS and independent sector’ although you might find the other tables useful too 3. **COVID-19 personal protective equipment (PPE)** <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/covid-19-personal-protective-equipment-ppe> especially section 8.1 ‘Aerosol generating procedures’ 4. **PHE statement regarding NERVTAG review and consensus on cardiopulmonary resuscitation as an aerosol generating procedure (AGP)** <https://www.gov.uk/government/publications/wuhan-novel-coronavirus-infection-prevention-and-control/phe-statement-regarding-nervtag-review-and-consensus-on-cardiopulmonary-resuscitation-as-an-aerosol-generating-procedure-agp>   **See also** the PHE guidance from 10 April listed below (COVID-19: personal protective equipment use for aerosol generating procedures). | |
| Centers for Disease Control and Prevention (US) | FAQs | 20 May 2020 | **Healthcare infection prevention and control FAQs for COVID-19**  <https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-faq.html>  See ‘Which procedures are considered aerosol generating procedures in healthcare settings?’ | |
| Health Protection Scotland | Literature Review | 20 May 2020 | **Rapid review of the literature: assessing the infection prevention and control measures for the prevention and management of COVID-19 in healthcare settings**  <https://www.hps.scot.nhs.uk/web-resources-container/rapid-review-of-the-literature-assessing-the-infection-prevention-and-control-measures-for-the-prevention-and-management-of-covid-19-in-healthcare-settings/> | |
| Public Health Scotland | Literature Review | 20 May 2020 | **Review of national and international guidance on infection prevention and control measures for Personal Protective Equipment (PPE) and Aerosol Generating Procedures (AGPs) for COVID-19**  <https://www.hps.scot.nhs.uk/web-resources-container/review-of-national-and-international-guidance-on-infection-prevention-and-control-measures-for-personal-protective-equipment-ppe-and-aerosol-generating-procedures-agps-for-covid-19/> | |
| European Centre for Disease Prevention and Control (ECDC) | Guidance | 13 May 2020 | **Infection prevention and control and preparedness for COVID-19 in healthcare settings – third update**  <https://www.ecdc.europa.eu/en/publications-data/infection-prevention-and-control-and-preparedness-covid-19-healthcare-settings> See page 5: Aerosol generated procedures. | |
| Public Health Scotland in collaboration with experts from New and Emerging Respiratory Virus Threats Advisory Group (NERVTAG) and Public Health England (PHE) | Literature Review | 12 May 2020 | **Assessing the evidence base for medical procedures which create a higher risk of respiratory infection transmission from patient to healthcare worker**  <https://www.hps.scot.nhs.uk/web-resources-container/assessing-the-evidence-base-for-medical-procedures-which-create-a-higher-risk-of-respiratory-infection-transmission-from-patient-to-healthcare-worker/>  This is the evidence cited in the Public Health England guidance. | |
| NHS Confederation | Briefing | 07 May 2020 | **Member briefing: The use and supply of personal protective equipment**  <https://www.nhsconfed.org/resources/2020/05/the-use-and-supply-of-personal-protective-equipment> | |
| BAPEN | Letter | 01 May 2020 | **Nasogastric tube insertion and aerosol generation during the Covid-19 crisis**  <https://www.bapen.org.uk/pdfs/covid-19/bapen-letter-to-rt-hon-matt-hancock.pdf> | |
| Resuscitation Council UK | Guideline | 01 May 2020 | **Resuscitation of adult COVID-19 patients in acute hospital settings**  <https://www.resus.org.uk/_resources/assets/attachment/full/0/36100.pdf> | |
| Royal College of Speech and Language Therapists | Guidance | 01 May 2020 | **RCSLT guidance on personal protective equipment (PPE) and COVID-19**  <https://www.rcslt.org/-/media/docs/Covid/RCSLT-PPE-guidance-1-May-2020.pdf?la=en&hash=76CF9CA7A4BB991FE60CEAD35B3940895E8472F6>  See pages 11-13: ‘4. Government (UK) and RCSLT guidance on aerosol generating procedures (AGPs) and high-risk procedures and elements of care undertaken by SLTs’ | |
| Resuscitation Council UK | Position Statement | 28 April 2020 | **RCUK Statement on PHE PPE Guidance**  <https://www.resus.org.uk/media/statements/resuscitation-council-uk-statements-on-covid-19-coronavirus-cpr-and-resuscitation/statement-on-phe-ppe-guidance/>  Further resources from RCUK for acute hospitals are available here: <https://www.resus.org.uk/media/statements/resuscitation-council-uk-statements-on-covid-19-coronavirus-cpr-and-resuscitation/in-hospital-settings/> | |
| Health Protection Scotland | Literature Review | 22 April 2020 | **Transmission based precautions literature review: aerosol generating procedures**  <https://www.hps.scot.nhs.uk/web-resources-container/transmission-based-precautions-literature-review-aerosol-generating-procedures/> | |
| Royal College of Speech and Language Therapists | Report | 22 April 2020 | **Aerosol generating procedures, dysphagia assessment and COVID-19**  <https://www.rcslt.org/-/media/RCSLT-Dysphagia-and-AGP220420FINAL-1-(1).PDF?la=en&hash=2E918D05AD4E63B0AFAE99F0DEA9ECBCFA64C9D3>  For background information, see also <https://www.rcslt.org/news/aerosol-generating-procedures-dysphagia-assessment-and-covid-19-rcslt-report-published> | |
| Public Health England | Guidance | 10 April 2020 | **COVID-19: personal protective equipment use for aerosol generating procedures**  <https://www.gov.uk/government/publications/covid-19-personal-protective-equipment-use-for-aerosol-generating-procedures> | |
| Resuscitation Council UK | Position Statement | 06 April 2020 | **Resuscitation Council UK Statement on COVID-19 in relation to CPR and resuscitation in acute hospital settings**  <https://www.resus.org.uk/media/statements/resuscitation-council-uk-statements-on-covid-19-coronavirus-cpr-and-resuscitation/covid-healthcare/>  Further resources from RCUK for acute hospitals are available here: <https://www.resus.org.uk/media/statements/resuscitation-council-uk-statements-on-covid-19-coronavirus-cpr-and-resuscitation/in-hospital-settings/> | |
| Royal College of Surgeons et al | Guidance | 06 April 2020 | **Updated Intercollegiate general surgery guidance on COVID-19**  <https://www.rcseng.ac.uk/coronavirus/joint-guidance-for-surgeons-v2/> | |
| Difficult Airway Society, the Association of Anaesthetists the Intensive Care Society, the Faculty of Intensive Care Medicine and the Royal College of Anaesthetists | Guideline | 27 March 2020 | **Consensus guidelines for managing the airway in patients with COVID-19**  <https://onlinelibrary.wiley.com/doi/full/10.1111/anae.15054> | |
| Peter Thomas et al (endorsed by several respiratory organisations, including the ACPRC) | Guidance | 23 March 2020 | **Physiotherapy management for COVID-19 in the acute hospital setting: recommendations to guide clinical practice**  <https://www.acprc.org.uk/Data/Resource_Downloads/FINALPhysiotherapy_Guideline_COVID-19_V1_Dated23March2020_endorsed.pdf?date=15/04/2020%2011:54:22>  See pages 17-19: ‘Aerosol generating procedures’.  Source: <https://www.acprc.org.uk/resources/covid-19-information/physiotherapy-guidance-for-clinicians-and-managers/> | |
| World Health Organization | Guidance | 19 March 2020 | **Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19)**  <https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf>  See page 2 for a brief paragraph regarding aerosol generating procedures. | |
| World Health Organization | Guidance | 19 March 2020 | **Infection prevention and control during health care when COVID-19 is suspected**  <https://www.who.int/publications-detail/infection-prevention-and-control-during-health-care-when-novel-coronavirus-(ncov)-infection-is-suspected-20200125>  See page 2: ‘3.2 Airborne precautions for aerosol-generating procedures’. | |
| Rachel Moses, LTHTR | Guidance | 12 March 2020 | **COVID 19: Respiratory Physiotherapy on call information and guidance**  <https://www.acprc.org.uk/Data/Resource_Downloads/COVID19RespiratoryPhysiotherapyOnCallInformationandGuidanceV2.pdf?date=26/05/2020%2015:29:56>  See pages 6-7: Respiratory Physiotherapy and Aerosol generating procedures (AGP).  Source: <https://www.acprc.org.uk/resources/covid-19-information/physiotherapy-guidance-for-clinicians-and-managers/> | |



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| **Disclaimer** |
| Searching the literature retrieved the information provided. We recommend checking the relevance and critically appraising the information contained within when applying to clinical decisions.  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 as we have only searched information resources which are available to Lancashire Teaching Hospital NHS Foundation Trust. No responsibility can be accepted for any action taken on the basis of this information. |

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| **Sourcing documents and journal articles** |
| If you need help obtaining the full text of any documents or articles listed in your literature search results, please feel free to contact us on 01772 52(2763) or email [library.rph@lthtr.nhs.uk](mailto:library.rph@lthtr.nhs.uk)  If we are unable to obtain literature online or from our own print or electronic collections, we may need to obtain them through our document delivery scheme and there may be a cost involved. We will inform you of this before ordering. |

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