**Clinical Librarian Service Search Results**

**Request:** What literature is available concerning the PPE required to set up a new clinical ward/area to accept COVID-19 patients?

**Summary**

A search of good quality resources has retrieved a small body of literature addressing use of PPE and resourcing clinical areas to cope with pandemic outbreaks. However, little of the literature gives great detail on the setting up of cohort wards/clinical areas.

Some guidance, recommendations and policy from NHS England,1,6,7 Public Health England,2 the World Health Organization,3,8,9,11 and the European Centre for Disease Prevention and Control, 4,5, provide perhaps the most detailed advice. The literature tends to focus on: the need for PPE; the use of appropriate PPE for particular settings/activities; the shortages in supply of PPE; the need for special areas to be set aside, such as donning and doffing areas, and the need to ensure adequate supply of PPE – e.g. 3-7 days. A small selection of paper are also included in the results listed below.

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/>

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**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/LiteratureSearchFeedback20192020/>

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:** 30th March 2020.

**Time taken for search:** 5 hours.

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

Evidence Search: LS404 PPE required to set up a new clinical COVID-19 area. Lisa Lawrence. (30/03/2020). Derby, UK: University Hospitals of Derby & Burton NHS Foundation Trust Library and Knowledge Service.

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

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**Results**

1. **Novel coronavirus (COVID19) standard operating procedure: Design note: COVID-19 ward for intubated patients.**

**Date:** 22 March 2020

**Extract:** *“Thresholds and entrances*

*Once potential areas for treatment of COVID-19 patients have been identified, consider the support required. Hospitals should provide changing rooms/areas where staff can change into uniforms on arrival at work. These may already exist.*

*Those entering a COVID-19 area will require personal protective equipment (PPE).*

*Identify the location of the clean PPE store and space to change at the gateway/threshold of COVID-19 areas. A changing space should have scrub facilities and clean PPE storage.*

*All linen should be handled inside the patient room/cohort area. Clean linen should be stored adjacent to the entrance for supply.*

*Store all used/infectious linen in a designated, safe, lockable area while awaiting uplift. Also locate space for dirty PPE change and disposal.*

*Infection control*

*It is unlikely the individual clinical wash basins are likely to be available for each bed. Make use of what is available.*

*All staff, patients and visitors should decontaminate their hands with alcohol-based hand rub (ABHR) when entering and leaving areas where suspected and confirmed COVID-19 patients are being cared for. Identify the location of the AHBR dispenser at each treatment/bed location.*

*Tissues, waste bins (lined and foot operated) and hand hygiene facilities should be available for patients, visitors and staff. Hands-free waste bins, with appropriate colour-coded waste bags, should be provided by each wash-hand basin”.*

**Source:** NHS England

**Full Text/URL:**

<https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/20200320-COVID-19-ESTATES-FACILTIES-V1.0.pdf>

1. **COVID-19 Guidance for infection prevention and control in healthcare settings.** Adapted from Pandemic Influenza: Guidance for infection prevention and control in healthcare settings 2020.

**Date:** 27 March 2020 v1.1.

**NB:** See sections 5.4 and 6.4 on PPE.

**Source:** Department of Health & Social Care, Pubic Health Wales, Public Health Agency Northern Ireland, Protection Scotland and Public Health England.

**Full Text/URL:**

<https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/876577/Infection_prevention_and_control_guidance_for_pandemic_coronavirus.pdf>

1. **Requirements and technical specifications of personal protective equipment (PPE) for the novel coronavirus (2019-ncov) in healthcare settings (interim recommendations, 2/6/2020)**

**Date:**  6 February 2020.

**NB:** Includes information concerning estimated numbers of units for use with infected patients per day and technical specifications of PPE items.

**Source:** World Health Organization.

**Full Text/URL:**

<https://iris.paho.org/bitstream/handle/10665.2/51906/requirements-%20PPE-coronavirus-eng.pdf?sequence=1&isAllowed=y>

1. **Checklist for hospitals preparing for the reception and care of coronavirus 2019 (COVID-19) patients.**

**Date:** February 2020.

**NB:** Includes information concerning: establishment of core teams; key contacts (internal and external); human, material, and facility capacity; communication and data protection; hand hygiene, PPE, and waste management; and triage, first contact and prioritisation.

**Source:** ECDC – European Centre for Disease Prevention and Control.

**Full Text/URL:** <https://www.ecdc.europa.eu/sites/default/files/documents/covid-19-checklist-hospitals-preparing-reception-care-coronavirus-patients.pdf>

1. **Personal protective equipment (PPE) needs in healthcare settings for the care of patients with suspected or cinfirmed novel coronavirus (2019-nCoV).**

**Date:** February 2020.

**NB:** Includes details of items to include in minimum recommended sets of PPE and minimum number of sets required for use per patient per day depending on different scenarios – suspected cases, confirmed cases – mild symptoms, confirmed cases – severe symptoms.

**Source:** ECDC – European Centre for Disease Prevention and Control.

**Full Text/URL:**

<https://www.ecdc.europa.eu/sites/default/files/documents/novel-coronavirus-personal-protective-equipment-needs-healthcare-settings.pdf>

1. **Personal Protection Equipment: letter from Professor Stephen Powis, Yvonne Doyle CB MD and Carrie MacEwen – 28 March 2020.**

**Date:** 28 March 2020.

**Source:** NHS England.

**Full Text/URL:**

<https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/personal-protection-equipment-letter-28-march-2020.pdf>

1. **Guidance on supply and use of PPE.**

**Date:** 2 March 2020.

**Source:** NHS England.

**Full Text/URL:**

<https://www.england.nhs.uk/coronavirus/wp-content/uploads/sites/52/2020/03/PPE-Letter-FINAL-20-March-2020-updated-on-22-March-2020.pdf>

1. **Coronavirus disease (COVID-19) technical guidance: COVID-19 Critical Items List.**

**Date:** 26 March 2020.

**Source:** World Health Organisation.

**Full Text/URL:**

<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/covid-19-critical-items>

1. **Rational use of personal protective equipment (PPE) for coronavirus disease (COVID-19) – Interim Guidance.**

**Date:** 19 March 2020.

**NB:** Includes *“Table 1 – Recommended personal PPE during the outbreak of COVID-19 outbreak, according to the setting, personnel, and type of activity”.*

**Source:** World Health Organisation.

**Full Text/URL:**

<https://apps.who.int/iris/bitstream/handle/10665/331498/WHO-2019-nCoV-IPCPPE_use-2020.2-eng.pdf>

1. **Cochrane Special Collections – Coronavirus (COVID-19): infection control and prevention measures.**

**Date:** 27 March 2020.

**NB:** Includes a range of Cochrane evidence relating to transmission, prevention and control of infections. Highlights need for PPE and types of PPE, but identifies that further evidence as to best PPE to utilise and maintain adherence to best practice remains required.

**Source:** Cochrane Library.

**Full Text/URL:** <https://www.cochranelibrary.com/collections/doi/SC000040/full>

1. **Infection Prevention and Control of Epidemic- and Pandemic-Prone Acute Respiratory Infections in Health Cae.**

**Date:** 2014.

**Source:** World Health Organization.

**Full Text/URL:**

<https://www.ncbi.nlm.nih.gov/books/NBK214359/pdf/Bookshelf_NBK214359.pdf>

1. **Challenges to the system of reserve medical supplies for public health emergencies: reflections on the outbreak of the severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) epidemic in China.**

**Author(s):** Wang, Xu; Zhang, Xiaoxi; He, Jiangjiang

**Source:** Bioscience trends; Mar 2020; vol. 14 (no. 1); p. 3-8

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

**PubMedID:** 32062645

Available at [Bioscience trends](http://search.ebscohost.com/login.aspx?direct=true&scope=site&site=ehost-live&db=mdc&AN=32062645) - from EBSCO (MEDLINE Complete)

Available at [Bioscience trends](https://www.jstage.jst.go.jp/article/bst/14/1/14_2020.01043/_pdf) - from Unpaywall

**Abstract:** On December 31, 2019, the Wuhan Municipal Health Commission announced an outbreak of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), China is now at a critical period in the control of the epidemic. The Chinese Government has been taking a series of rapid, comprehensive, and effective prevention and control measures. As the pandemic has developed, a fact has become apparent: there is a serious dearth of emergency medical supplies, and especially an extreme shortage of personal protective equipment such as masks and medical protective clothing. This is one of the major factors affecting the progress of epidemic prevention and control. Although China has made great efforts to strengthen the ability to quickly respond to public health emergencies since the SARS outbreak in 2003 and it has clarified requirements for emergency supplies through legislation, the emergency reserve supplies program has not been effectively implemented, and there are also deficiencies in the types, quantity, and availability of emergency medical supplies. A sound system of emergency reserve supplies is crucial to the management of public health emergencies. Based on international experiences with pandemic control, the world should emphasize improving the system of emergency reserve medical supplies in the process of establishing and improving public health emergency response systems, and it should promote the establishment of international cooperative programs to jointly deal with public health emergencies of international concern in the future.

**Database:** Medline

1. **The Italian COVID-19 outbreak: experiences and recommendations from clinical practice.**

**Author(s):** Sorbello M, El-Boghdadly K, Di Giacinto I, Cataldo R, Esposito C, Falcetta S, Merli G, Cortese G, Corso RM, Bressan F, Pintaudi S, Greif R, Donati A, Petrini F; Società Italiana di Anestesia Analgesia Rianimazione e Terapia Intensiva (SIAARTI) Airway Research Group, The European Airway Management Society.

**Citation:** Anaesthesia. 2020 Mar 27. doi: 10.1111/anae.15049. [Epub ahead of print]

**Abstract:** Novel coronavirus 2019 is a single-stranded, ribonucleic acid virus that has led to an international pandemic of coronavirus disease 2019 (COVID-19). Clinical data from the Chinese outbreak have been reported, but experiences and recommendations from clinical practice during the Italian outbreak have not. We report the impact of the COVID-19 outbreak on regional and national healthcare infrastructure. We also report on recommendations based on clinical experiences of managing patients throughout Italy. In particular, we describe key elements of clinical management, including safe oxygen therapy, airway management, personal protective equipment and non-technical aspects of caring for patients diagnosed with COVID-19. Only through planning, training and team working will clinicians and healthcare systems be best placed to deal with the many complex implications of this new pandemic. This article is protected by copyright. All rights reserved.

DOI: 10.1111/anae.15049

**Source:** PubMed. PMID: 32221973

**Full Text/URL:** <https://onlinelibrary.wiley.com/doi/full/10.1111/anae.15049?af=R>

1. **Preparing for a COVID-19 pandemic: a review of operating room outbreak response measures in a large tertiary hospital in Singapore.**

**Author(s):** Wong, Jolin; Goh, Qing Yuan; Tan, Zihui; Lie, Sui An; Tay, Yoong Chuan; Ng, Shin Yi; Soh, Chai Rick

**Source:** Canadian journal of anaesthesia = Journal canadien d'anesthesie; Mar 2020

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

**PubMedID:** 32162212

Available at [Canadian journal of anaesthesia = Journal canadien d'anesthesie](https://link.springer.com/content/pdf/10.1007/s12630-020-01620-9.pdf) - from Unpaywall

**Abstract:** The coronavirus disease 2019 (COVID-19) outbreak has been designated a public health emergency of international concern. To prepare for a pandemic, hospitals need a strategy to manage their space, staff, and supplies so that optimum care is provided to patients. In addition, infection prevention measures need to be implemented to reduce in-hospital transmission. In the operating room, these preparations involve multiple stakeholders and can present a significant challenge. Here, we describe the outbreak response measures of the anesthetic department staffing the largest (1,700-bed) academic tertiary level acute care hospital in Singapore (Singapore General Hospital) and a smaller regional hospital (Sengkang General Hospital). These include engineering controls such as identification and preparation of an isolation operating room, administrative measures such as modification of workflow and processes, introduction of personal protective equipment for staff, and formulation of clinical guidelines for anesthetic management. Simulation was valuable in evaluating the feasibility of new operating room set-ups or workflow. We also discuss how the hierarchy of controls can be used as a framework to plan the necessary measures during each phase of a pandemic, and review the evidence for the measures taken. These containment measures are necessary to optimize the quality of care provided to COVID-19 patients and to reduce the risk of viral transmission to other patients or healthcare workers.

**Database:** Medline

1. **Sourcing Personal Protective Equipment During the COVID-19 Pandemic.**

**Author(s):** Livingston E, Desai A, Berkwits M.

**Citation:** JAMA. 2020 Mar 28. doi: 10.1001/jama.2020.5317. [Epub ahead of print]

DOI: 10.1001/jama.2020.5317

**Source:** PubMed. PMID: 32221579

**Full Text/URL:** <https://jamanetwork.com/journals/jama/fullarticle/2764031>

#### A systematic risk-based strategy to select personal protective equipment for infectious diseases.

**Author(s):** Jones, Rachael M. et al.

**Citation:** American Journal of Infection Control, Volume 48, Issue 1, 46 - 51

**Abstract:** Background Personal protective equipment (PPE) is a primary strategy to protect health care personnel (HCP) from infectious diseases. When transmission-based PPE ensembles are not appropriate, HCP must recognize the transmission pathway of the disease and anticipate the exposures to select PPE. Because guidance for this process is extremely limited, we proposed a systematic, risk-based approach to the selection and evaluation of PPE ensembles to protect HCP against infectious diseases. Methods The approach used in this study included the following 4 steps: (1) job hazard analysis, (2) infectious disease hazard analysis, (3) selection of PPE, and (4) evaluation of selected PPE. Selected PPE should protect HCP from exposure, be usable by HCP, and fit for purpose. Results The approach was demonstrated for the activity of intubation of a patient with methicillin-resistant Staphylococcus aureus or Severe Acute Respiratory Syndrome coronavirus. As expected, the approach led to the selection of different ensembles of PPE for these 2 pathogens. Discussion A systematic risk-based approach to the selection of PPE will help health care facilities and HCP select PPE when transmission-based precautions are not appropriate. Owing to the complexity of PPE ensemble selection and evaluation, a team with expertise in infectious diseases, occupational health, the health care activity, and related disciplines, such as human factors, should be engaged. Conclusions Participation, documentation, and transparency are necessary to ensure the decisions can be communicated, critiqued, and understood by HCP.

**Source:** Google.

**Full Text/URL:** <https://www.ajicjournal.org/article/S0196-6553(19)30654-6/pdf>

1. **Expanding ICU facilities in an epidemic: recommendations based on experience from the SARS epidemic in Hong Kong and Singapore.**

**Author(s):** Gomersall, Charles D; Tai, Dessmon Y H; Loo, Shi; Derrick, James L; Goh, Mia Siang; Buckley, Thomas A; Chua, Catherine; Ho, Ka Man; Raghavan, Geeta P; Ho, Oi Man; Lee, Lay Beng; Joynt, Gavin M

**Source:** Intensive care medicine; Jul 2006; vol. 32 (no. 7); p. 1004-1013

**Publication Type(s):** Research Support, Non-u.s. Gov't Journal Article

**PubMedID:** 16570146

Available at [Intensive care medicine](http://search.ebscohost.com/login.aspx?direct=true&scope=site&site=ehost-live&db=mdc&AN=16570146) - from EBSCO (MEDLINE Complete)

Available at [Intensive care medicine](http://gateway.proquest.com/openurl?ctx_ver=Z39.88-2004&res_id=xri:pqm&req_dat=xri:pqil:pq_clntid=145298&rft_val_fmt=ori/fmt:kev:mtx:journal&genre=article&issn=0342-4642&volume=32&issue=7&spage=1004) - from ProQuest (Health Research Premium) - NHS Version

**Abstract:** Epidemics have the potential to severely strain intensive care resources and may require an increase in intensive care capability. Few intensivists have direct experience of rapidly expanding intensive care services in response to an epidemic. This contribution presents the recommendations of an expert group from Hong Kong and Singapore who had direct experience of expanding intensive care services in response to the epidemic of severe acute respiratory syndrome. These recommendations cover training, infection control, staffing, communication and ethical issues. The issue of what equipment to purchase is not addressed. Early preparations should include fit testing of negative pressure respirators, training of reserve staff, sourcing of material for physical modifications to the ICU, development of infection control policies and training programmes, and discussion of triage and quarantine issues.

**Database:** Medline

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**Databases searched:**

* + **Evidence-Based Reviews/Point-of-Care:** Cochrane Library, UpToDate.
  + **Guidance:** NICE Guidance, selected International Guidelines.
  + **Healthcare Databases:** MEDLINE, HMIC, PubMed.
  + **Other:** Google, Google Scholar, NHS England, World Health Organization COVID-19 collection, Cochrane Collaboration Critical Care Collection, NHS Providers, Health & Safety Executive, gov.uk.

**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 Infections | 2019nCoV |
| Disease Outbreaks | “Clinical area” |
| Equipment and Supplies | “Corona virus” |
| Health Facility, Environment | CoV2 |
| Infection Control | “CoV 2” |
| Patients’ Rooms | COVID-19 |
| Personal Protective Equipment | “covid 19” |
| Protective Clothing | Develop\* |
|  | Establish\* |
|  | Infection control |
|  | Isolation |
|  | nCoV |
|  | “novel CoV” |
|  | “novel coronavirus” |
|  | Pandemic |
|  | Personal protective equipment |
|  | PPE |
|  | SARS-CoV-2 |
|  | sarscov2 |
|  | “Set\* up” |
|  | Ward |

**Search Limits:** English language.

**Search Date: 30/03/2020**

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