COVID-19 Safety Guide for Hospital Healthcare Workers

المركز السعودي لسلامة المرضى
SAUDI PATIENT SAFETY CENTER

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INTRODUCTION

Healthcare workers (HCW) are individuals who deliver care and services to the sick and ailing either directly as physicians, nurses and respiratory therapists or indirectly as aides, helpers, laboratory technicians, housekeepers and medical waste handlers. Frontline healthcare workers are the backbone of effective healthcare systems and face additional burdens and hazards as they respond to the current COVID-19 pandemic. These burdens include exposure to pathogens, psychological distress, fatigue, long working hours, burnout, and physical and psychological violence. All employers need to consider national and international best practices to reduce the transmission of COVID-19 amongst their workforce, maintain business operations, lower the impact in their workplace, and maintain a healthy work environment.

Disclaimer: The information provided in this guide aims to assist healthcare professionals to maintain their safety as a top priority, and we highly recommend the adherence to all COVID-19 recommendations posted by the Saudi Center for Disease Prevention and Control (SCDC) and follow the policies and procedures implemented in the institution.

COVID-19 SAFETY GUIDE FOR HEALTHCARE WORKERS

HEALTHCARE EMPLOYERS AND MANAGERS

1. REDUCE TRANSMISSION AMONG EMPLOYEES

- Establishment of sustainable IPC infrastructures and activities.
- Ensure all necessary preventive and protective measures are implemented to minimize occupational safety and health risks.
- Provide daily technical COVID-19 updates from trusted resources and share up to date infection prevention and control information with providers, patients and the public via electronic platforms.
- Provide HCWs with the appropriate tools to assess, triage, and treat patients.
- HCWs who are ill should follow the established guidelines with regards to self-isolation and testing for COVID-19.
- Avoid transport of patients throughout the facility except for medically essential purposes and develop a dedicated transport route and routes of entry involving source control for the patient, PPE for workers, and environmental cleaning.

A. HAND HYGIENE

- Hand hygiene is a standard precaution before and after contact with patients or potentially infectious material, and before applying and after removing PPE.
- Healthcare organizations should ensure that hand hygiene supplies are available to all personnel in every care location.

B. PERSONAL PROTECTIVE EQUIPMENT

- All HCWs should receive individual N95 mask fit checking.
- Provide all HCWs (include but not limited to: medical, nursing, allied health, cleaning and ward assistants) with adequate infection prevention and control (IPC) and personal protective equipment (PPE) supplies

(e.g., masks, N95 masks, gloves, goggles, gowns, hand sanitizer, soap and water, cleaning supplies) in sufficient quantity.

C. TRAINING

- Provide personnel with instruction and training on occupational safety and health using and up to date COVID-19 materials and resources from trusted resources, including:
  - o In-person training and education, hands-on training and education, educational videos, and virtual learning tools on IPC.
  - o Appropriate use, putting on, taking off, and disposal of PPE.

2. MAINTAIN BUSINESS OPERATIONS

A. STAFFING:

- Identify a workforce coordinator: the workplace coordinator will assume the responsibility for COVID-19 concerns and their potential impact at the workplace.
- Monitor and respond to increased absenteeism at the workplace due to spikes in the numbers of sick employees, and those who stay home to care for ill family members as this will reflect the workforce levels.
- Teach and cross-train HCWs with the required skills to perform essential functions so the workplace can operate in the absence of key employees.

B. SURGE PREPARATION:

- Assess the healthcare organization's essential functions and be prepared to change business continuity plans and practices to maintain critical operations as needed. For example: identify alternative suppliers or temporarily suspend some of your services as needed.
- Assess the healthcare organization's essential functions and be prepared for a surge of patients with possible or confirmed COVID-19, including plans to isolate, cohort, and to provide safe staffing.
- Establish, activate, and monitor policies and practices for social distancing: Implement social distancing as recommended by the SCDC and increase physical space and maintaining distance (approximately 6 feet or 2 meters) between employees and others when feasible. The following strategies should be considered by healthcare organizations:
  - o Flexible worksites (e.g., telework via phone, video, or web),
  - o Flexible and supportive sick leave policies and practices,
  - o Flexible work hours (e.g., staggered shifts), and
  - o Flexible meeting and travel options, for example, postpone non-essential meetings or events.

3. MAINTAIN A HEALTHY WORK ENVIRONMENT:

- Follow the organization approved respiratory and hand hygiene protocols for employees, customers, and worksite visitors.
- Ensure consistent and correct environmental cleaning and disinfection procedures are followed as per the healthcare organizations' approved policies.

4. HEALTH, SAFETY, AND WELLBEING

- Establish log records and daily monitoring before the start of the shift of healthcare workers with COVID-19 symptoms of acute respiratory illness and fever.
- Establish and encourage a blame-free environment for personnel to report incidents, and to adopt measures for immediate follow-up. These incidents include the following:
  - Disclosure of any exposure to fluids from the respiratory system.
  - Disclosure of cases of violence.
- Connect HCWs to mental health and counseling resources and social, behavioral, and other services as needed.

HEALTHCARE WORKERS

- Follow the established healthcare organization's safety and health procedures, avoid exposing others to health and safety risks, and participate in employer-provided training.
- Follow the established SCDC protocols to assess and triage any patient with acute respiratory symptoms and risk factors for COVID-19, including placing a facemask on the patient and placing them in an examination room with the door closed.
- Follow the established SCDC precautions when caring for patients with suspected or confirmed COVID-19.
- Apply, use, remove, and dispose of personal protective equipment properly.
- Self-monitor and report to management if you are experiencing any signs of illness.
- Seek management advice and support if experiencing any signs of undue stress or mental health challenges that require supportive interventions.
- Report to the immediate supervisor if any situation observed with reasonable imminent and serious danger to life or health.
- Follow your institution policies and recommendations in regards of use, extended use, or re-use of N95 respirator and other PPE.

COVID-19 SAFETY GUIDE FOR HEALTHCARE WORKERS IN SPECIALTY AREAS

KEEP IN MIND, FOLLOW THE RECOMMENDATIONS POSTED BY SAUDI CENTER FOR DISEASE PREVENTION AND CONTROL (SCDC) TO MEET THE CURRENT COVID-19 CASE DEFINITION, AND UPDATED RECOMMONDATIONS

Setting	Recommendations
Intra-hospital transfers	- Restrict the transfer and movement of patients under isolation precautions for medically essential purposes, and ensure selecting low traffic time short route, whenever possible. - If the transport/movement is necessary, offer the patient a surgical mask to be worn during transportation, to minimize the dispersal of respiratory droplets when this can be tolerated. - Develop a dedicated transport route and routes of entry involving source control for the patient, PPE for workers, and environmental cleaning. Suspected and confirmed COVID-19 patients must not wait in public areas.

Inter-hospital transfers	• Avoid transport and movement of patients from one healthcare facility to another except for medically essential purposes for specialist care arising out of complications or concurrent medical events. • If the transfer/movement is essential, notify the ambulance service and receiving healthcare organization in advance regarding the infectious status of the patient.
Transfer from primary care/community settings	• If the transfer/movement from a primary care facility or community setting to a healthcare organization is required, advise ambulance service and receiving healthcare organization in advance regarding the infectious status of the patient. • Ensure cleaning and disinfection of the ambulance before and after use. • Notify staff at the receiving ward/department in advance of any transfer and the infectious status of the patient.

Intensive Care Units (ICU) / Isolation Units	• The performance of aerosol-generating procedures is associated with the transmission of infectious agents to HCWs. It is recommended that aerosol-generating procedures for any suspected and confirmed COVID-19 cases should be performed in a negative pressure room or single room with a portable HEPA filter and HCWs should apply the proper PPE (N95 mask, eye protection, gloves, and gown). Apply recommended precautions as per the SCDC in the following's aerosol-generating medical procedures:
	   o Cardiopulmonary resuscitation
	   o Bag-mask ventilation
	   o Non-invasive ventilation (including chronic CPAP/NIV used for chronic conditions)
	   o High-flow nasal oxygen (i.e., Optiflow, Airvo..)
	   o Nebulized medications
	   o Intubation
	   o Extubation
	   o Tracheostomy
	   o Procedures likely to induce coughing (e.g., open suctioning of airways)
	   o Bronchoscopy (strongly discouraged) and sputum induction (no indication)
	• Avoid sharing ICU equipment. Preferentially use only single-use equipment.
	• All patients in ICU should be assessed for potential COVID-19 infection.
	• All intensive care healthcare workers (medical, nursing, allied health, cleaning and ward assistants) must undergo training in infection control and personal protection equipment.
	• All personnel must receive individual N95 mask fit checking.
	• Arrange treatment, examination and disinfection for each team to reduce the frequency of staff moving in and out of the isolation wards.
	• Before going off duty, staff must conduct necessary personal hygiene regimens to prevent possible infection of their respiratory tracts and mucosa.

Operating Theatres	• Notify operating theatres in advance of any transfer of a patient with confirmed or suspected COVID19. • Directly transfer the patient with suspected or confirmed COVID19 to the operating theatre and offer the patient a surgical mask to be worn during transportation, to minimize the dispersal of respiratory droplets when this can be tolerated. • Suspected and confirmed COVID-19 cases should be placed at the end of the list where feasible. • Any patient with suspected or confirmed COVID19 should be anesthetized and recovered in a negative pressure room. If negative pressure rooms aren't available, consult with facilities to ensure air handling is routed through HEPA filters.

	• All surgical personnel should apply their PPE in a buffer room before entering the operating theatre. Recommended: Apply double caps, medical protective N95 mask, eye protection goggles, medical protective clothing, boot covers, and latex gloves. • Surgeons, residents, and scrub personnel should wear a disposable sterile operating gown and sterile gloves in addition to the PPE, as mentioned above. • Any surgical staff at risk of exposure from aerosol-generating procedures, i.e., during intubation, should wear personal protective equipment and protective clothing. • Surgical instruments and devices should be decontaminated in accordance with manufacturers' advice. • Laryngoscope handles and blades should either be single-use or reprocessed in the Sterile Supply Department. • Operating theatre should be cleaned as per the healthcare organizations' policy for infected cases with particular attention to hand contact points on the anesthetic machine. • Exclude irrelevant personnel from entering the operating theatre.
Emergency Departments	• Assign a triage practitioner(s) in the reception to manage patient flow, screen, and segregate patients with acute infectious respiratory symptoms of COVID-19 (e.g., fever, cough, shortness of breath, sore throat) to a separate waiting and assessment area immediately. Provide these patients with a facemask if tolerated and instruct these patients to stay in this area and not visit other units, departments, or public areas. (Follow the most updated triage criteria from the SCDC). • Physically separate and triage patients with no symptoms of COVID-19 requiring prompt acute care assessment to a specific waiting and examination area. • The performance of aerosol-generating procedures, such as endotracheal intubation and open suctioning of the respiratory tract, are associated with the transmission of infectious agents to healthcare personnel. It is recommended that aerosol-generating procedures for any suspected and confirmed COVID-19 cases should be performed in a negative pressure room or single room with a portable HEPA filter and HCWs should apply the proper PPE (N95 mask, eye protection, gloves, and gown).
Healthcare Management	• Maintain an updated list of PPE and other vital disposables. • All hospitals should keep a record of PPE compliance and competency training for all healthcare workers; only HCWs who have been trained in PPE usage should care for patients with COVID-19. • Monitor, and observe, and record any breach in PPE use in the incident management system as an occupational health and safety risk. • Ensure all HCWs have received continuous infection control training on COVID-19. • Hospital-provided clean scrubs to be available for each shift, if possible. • Access to shower facilities, if possible. • Maintain an updated recommendation for the frontline HCWs in the ICU, ER and isolation units with isolation accommodation, if possible. • Provide HCWs in the ICU, ER and other isolation units with a nutritious diet, and proper break periods. • Conduct health monitoring for frontline HCWs in the isolation areas and immediately isolate and screen any HCW with COVID-19 associated symptoms. • Address any psychological and physiological concerns healthcare workers in the ICU and isolation units. • Establish a dedicated roster to segregate "clean teams" from "COVID-19 teams".
Visitors	• Limit visitors to immediate family for all ICU patients during the pandemic as per the designated healthcare organizations' policy.

	• Communicate visits clearly and compassionately to visitors with an emphasis on the protection of patients, families and HCWs. • Screen all visitors to ICU for potential COVID-19 infection as per the designated healthcare organizations' policy. • Any visitor with a temperature or respiratory symptoms should not be allowed to visit a patient. • Maintain a hospital visitor log to allow for contact tracing and activity mapping of confirmed cases. • Communication to families and visitors should include posting visual alerts (e.g., posters) at the entrance and in strategic places (e.g., waiting areas, elevators) advising visitors not to enter the facility when ill.

STAFF SURGE CAPACITY FOR ICU

The COVID-19 viral pandemic denotes a unique challenge to intensive care services. During an epidemic, the major problem is around preparing ICU units and the HCWs for the expected surge in caseload, which may be complicated by supply chain issues and workforce challenges with potential difficulty in maintaining standard staffing ratios.

As a significant number of critically ill patients are admitted to critical units (ICU, step-down, and other expansion beds), it must be determined who will care for them. Having a sufficient supply of beds and equipment is not enough; HCWs are also required. All ICU staff (e.g., Physicians, Nurses, respiratory therapists) will also be in short supply. These critical members of the ICU team are required to deliver adequate and safe, high-quality critical care. Furthermore, an undetermined number of experienced ICU staff may become ill, adding more strain on the system as the need and capacity surge.

At anticipated pandemic levels, the projected shortfall of ICU consultants, intensivists, critical care nurses, and respiratory therapists trained in mechanical ventilation would impact the care of critically ill ventilated patients. Consequently, the focus needs to be not only on increasing the numbers of mechanical ventilators but on addressing the number of trained professionals that will be required to care for both mechanically ventilate COVID-19 patients with and for other critically ill patients requiring ICU care.

This section aims to provide examples of approaches for hospitals to consider as ways to enhance their surge capacity for staffing ICUs to enable continued high-quality clinical care during a pandemic.

EXAMPLES FOR STAFF SURGE CAPACITY

A. AUGMENTING CRITICAL CARE STAFFING:

The approach outlined below is an example of innovative ways to scale up staffing capacity during pandemics. As each healthcare organization's staffing resources are varied, the approach can be modified to align with the organization's staffing complement.

1. ONTARIO HEALTH PLAN FOR AN INFLUENZA PANDEMIC CARE TEAM APPROACH

The Ontario Health Plan for an Influenza Pandemic Care Team Approach is based on how much critical care capacity can be increased and will primarily depend on the availability of ventilators and personnel skilled in managing critically ill patients.

Scaling back of elective services and surgery frees up areas in hospitals such as surgical intensive care units, endoscopic units, step-down units and post-anesthetic care units that are well equipped to provide critical care services. Additional personnel can be realized through the scale-back of elective and non-urgent services. The skills of these HCWs may not have previously been applied to critical care but may be readily transferable to critical care.

This group of HCWs has a significant potential for increasing critical care capacity when a care team model is applied (Figure 1).
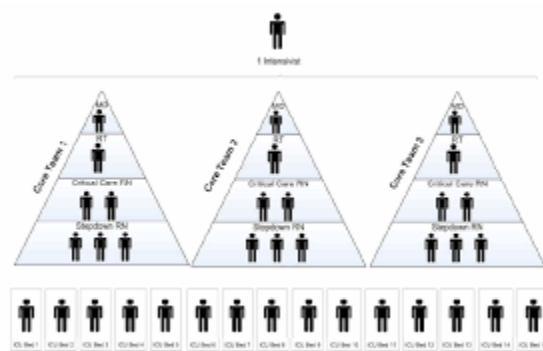

Figure 1 Care Team Model

The use of care teams has proven to be effective in past emergencies. In the care team model:

- HCWs who have useful skills but lack experience in a specific area can work in teams, supervised by those with the relevant experience.
- Instead of individual HCWs caring for one to two patients, a team of HCWs, who amongst them possess a complete skill set and relevant experience, collectively care for a group of patients.

As an example, in this model, a team composed 2 ICU nurses supervising 3 step -down nurses working in conjunction with a respiratory therapist and a physician could care for 6 to 8 patients. This versus the traditional staff compliment of 1:1 or 1:2 ratio of critical care nurses, for example, 4 ICU nurses caring for five ventilated patients.

2. TIERED STAFFING STRATEGY FOR PANDEMIC REQUIRING MECHANICAL VENTILATION

The Fundamental Disaster Management program was adapted by the Society of Critical Care Medicine (SCCM) from the original Ontario Health Plan for an Influenza Pandemic model above (Figure 1) to create the **Tiered Staffing Strategy for Pandemic Requiring Mechanical Ventilation below (Figure 2).**

Mechanical ventilation is an effective approach to incorporate non-ICU-trained HCWs of all disciplines (physicians, nurses, and others [in **red**]) to significantly augment the trained and experienced ICU staff [in **green**]). While dietitians, pharmacists, rehabilitation specialists, and other professionals are considered key members of the ICU team, this model speaks to HCWs needed to address a pandemic requiring a dramatic increase in the need for mechanical ventilation. This model recommends adding staff who are directly assigned to the management of multiple ventilators, while other staff added proved overall support to the patient.

While the level of care may not be the same as in the typical ICU in non-crisis times, having care directed by trained and experienced intensivists or others with critical care clinical experience is an effective way to maximize care for large numbers of critically ill patients. Though this model focuses on hospitals with intensivists, however, hospitals without intensivists, the critical care team may be overseen by anesthesiologists, pulmonologists, hospitalists, or others with experience caring for critically ill patients.
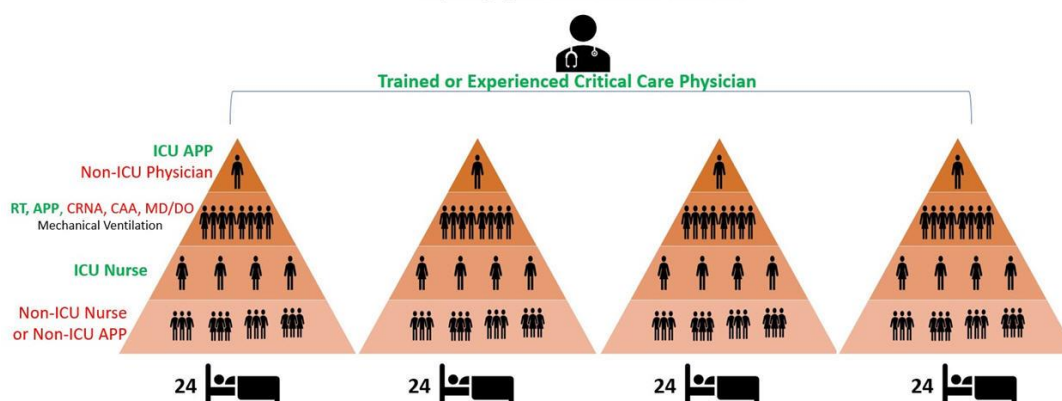
Figure 2. Tiered Staffing Strategy for Pandemic Requiring Mechanical Ventilation (SCCM | United States Resource Availability for COVID-19)

Figure 2 Note: In the Tiered Staffing model presented above, care is provided by a team for each of the four groups of 24 patients, led by a physician trained in critical care or regularly manages ICU patients.

- A single team cares for 24 patients.
- A physician trained in critical care or regularly manages ICU patients oversees four teams.
- A non-ICU physician who ideally has had training but does not routinely perform ICU care is added as a way of extending the trained and experienced ICU physicians' knowledge while working alongside APPs who regularly care for ICU patients.
- Similarly, to augment the ability to ventilate more patients mechanically, experienced ICU respiratory therapists and APPs are amplified by adding clinicians such as physicians (either MD or DO), nurse-anesthetists, and certified anesthesiologist assistants who are experienced in managing patients' ventilation needs*.*

B. NURSING STAFF MODEL

The National Nurses United recommends the following nursing staffing model:

- Minimum 1 RN:1 patient assignment to prevent possible exposure to other patients via contaminated objects or surfaces.
- Additional staffing must be assigned to ensure safety, including a buddy or observer system to ensure safe donning and doffing of PPE.
- Additional staffing must be assigned to ensure that the nurse assigned to the patient has rest breaks and relief as needed

C. OTHER STAFF SURGE CAPACITY SOURCES

Most countries that have already been hit hard by the COVID-19, attempted to increase the supply of HCWs to respond to the surge in demand, in both testing large numbers of people and providing acute treatments for those who need it. Several countries have tried to mobilize:

- Inactive and retired health professionals, although this has raised a concern that retired health professionals may be at higher risk of severe consequences and mortality from the coronavirus if they catch it, as it affects older people more severely.
- Military health professionals, to assist both in treatment and the relocation of patients or suspected cases.
- Students in medical, nursing and other health education programs are nearing the end of their studies to provide services to patients or to help in responding to public concerns through telephone hotlines.

ADDITIONAL RESOURCES

HAND HYGIENE

Saudi center for disease control and prevention

https://covid19.cdc.gov.sa/wp-content/uploads/2020/03/Coronavirus-Disease-2019-Guidelines-v1.2.pdf.pdf

Best Practice - How to Hand Wash:

http://www.nipcm.scot.nhs.uk/appendices/appendix-1-best-practice-how-to-hand-wash/

Best Practice - How to Hand Rub:

http://www.nipcm.scot.nhs.uk/appendices/appendix-2-best-practice-how-to-hand-rub/

HEALTHCARE PERSONNEL WITH POTENTIAL COVID-19 EXPOSURE IN A HEALTHCARE SETTING

Saudi center for disease control and prevention

https://covid19.cdc.gov.sa/wp-content/uploads/2020/03/Coronavirus-Disease-2019-Guidelines-v1.2.pdf.pdf

https://covid19.cdc.gov.sa/ar/professionals-health-workers-ar/publications-ar/

Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a Healthcare Setting to Patients with Coronavirus Disease (COVID-19):

https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-risk-assesment-hcp.html

Risk Assessment of Healthcare Workers with Potential Workplace Exposure to Covid-19 Case:

https://www.hpsc.ie/a-z/respiratory/coronavirus/novelcoronavirus/guidance/occupationalhealthguidance/Healthcare%20Worker%20Contact%20Tracing%20Risk%20Assessment%20Algorithm%20V5.pdf

PERSONAL PROTECTIVE EQUIPMENT

Saudi center for disease control and prevention

https://covid19.cdc.gov.sa/wp-content/uploads/2020/03/Coronavirus-Disease-2019-Guidelines-v1.2.pdf.pdf

https://covid19.cdc.gov.sa/ar/professionals-health-workers-ar/publications-ar/

Recommended type of personal protective equipment (PPE) to be used in the context of COVID-19 disease, according to the setting, personnel and type of activity:

https://apps.who.int/iris/bitstream/handle/10665/331215/WHO-2019-nCov-IPCPPE_use-2020.1-eng.pdf

Best Practice - Putting on and Removing PPE:

http://www.nipcm.scot.nhs.uk/appendices/appendix-6-best-practice-putting-on-and-removing-ppe/

Facial Hairstyles and Filtering Facepiece Respirators:

https://www.cdc.gov/niosh/npptl/pdfs/FacialHairWmask11282017-508.pdf

HEALTHY WORK ENVIRONMENT

Best Practice - Decontamination of reusable non-invasive care equipment:

http://www.nipcm.scot.nhs.uk/appendices/appendix-7-best-practice-decontamination-of-reusable-non-invasive-care-equipment/

Best Practice - Management of Blood and Body Fluid Spillages:

http://www.nipcm.scot.nhs.uk/appendices/appendix-9-best-practice-management-of-blood-and-body-fluid-spillages/

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Saudi center for disease control and prevention

https://covid19.cdc.gov.sa/wp-content/uploads/2020/03/Coronavirus-Disease-2019-Guidelines-v1.2.pdf.pdf

https://covid19.cdc.gov.sa/ar/professionals-health-workers-ar/publications-ar/

World Health Organization

https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/patient-management

EMS Infectious Disease Playbook:

https://www.ems.gov/pdf/ASPR-EMS-Infectious-Disease-Playbook-June-2017.pdf

Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States:

https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-for-ems.html

The Australian and New Zealand Intensive Care Society (ANZICS) COVID-19 Guidelines:

https://www.anzics.com.au/wp-content/uploads/2020/03/ANZICS-COVID-19-Guidelines-Version-1.pdf

SURGE CAPACITY

World Health Organization

https://www.who.int/emergencies/diseases/novel-coronavirus-2019/technical-guidance/patient-management

Critical Care during a Pandemic:

http://www.cidrap.umn.edu/sites/default/files/public/php/21/21_report.pdf

Tiered Staffing Strategy for Pandemic:

https://sccm.org/getattachment/Blog/March-2020/United-States-Resource-Availability-for-COVID-19/United-States-Resource-Availability-for-COVID-19.pdf?lang=en-US

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World Health Organization:
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Handbook of COVID-19 Prevention and Treatment. Retrieved from https://video-intl.alicdn.com/Handbook%20of%20COVID-19%20Prevention%20and%20Treatment%20%28Standard%29.pdf?spm=a3c0i.14138300.8102420620.download.6df3647fjUUvQl&file=Handbook%20of%20COVID-19%20Prevention%20and%20Treatment%20%28Standard%29.pdf (accessed March 25, 2020)