Crisis Standards of Care
Crisis Level Guidance for COVID-19

State of Nevada
Department of Health and Human Services
Division of Public and Behavioral Health
Governor Sisolak’s Medical Advisory Team for the COVID-19 Response
and
Emergency Providers of Nevada
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Crisis Level Guidance for COVID-19

The Nevada Crisis Standards of Care (CSC) Plan has been activated. Initial guidance for resource sparing strategies based on shortages of space, staff, and supplies throughout Nevada’s statewide healthcare system is provided in this document. These recommendations may change as the situation evolves in Nevada. The content in this plan is specific to the COVID-19 response and assumes the situation has reached the “crisis” level of the overall CSC Plan.

COVID-19 Situation Summary

The Nevada Department of Health and Human Services and partner agencies across the state are responding to a pandemic of respiratory disease caused by a novel (new) coronavirus (COVID-19). COVID-19 can cause mild to severe illness; most severe illness occurs in older adults. Symptoms of COVID-19 most often include fever, cough, and shortness of breath. When someone develops the following emergency warning signs, they should seek medical attention immediately.

- Cough
- Shortness of breath or difficulty breathing
- Fever
- Chills
- Muscle pain
- Sore throat
- New loss of taste or smell

This situation is spreading in regions around the globe including the United States and Nevada. There is little data available to accurately predict the timing of increased service need in response to this pandemic, but evidence from other affected regions in the world suggest the healthcare resources in Nevada may become overwhelmed.

How COVID-19 Spreads

There is much to learn about the newly emerged COVID-19, including how and how easily it spreads. Based on what is currently known about COVID-19 and what is known about other coronaviruses, spread is thought to occur mostly from person-to-person via respiratory droplets produced when an infected person coughs, sneezes, or talks. These droplets can land in the mouths or noses of people who are nearby or possibly be inhaled into the lungs. Spread is more likely when people are in close contact with one another (within about 6 feet).

Close contact can occur while caring for a patient, including:

- being within approximately 6 feet (2 meters) of a patient with COVID-19 for a prolonged period.
- having direct contact with infectious secretions from a patient with COVID-19. Infectious secretions may include sputum, serum, blood, and respiratory droplets.

If close contact occurs while not wearing all recommended PPE, healthcare personnel may be at risk of infection.

Principals of Crisis Standards of Care Crisis Level Guidance for COVID-19

All lives are precious. If resources are sufficient, all patients who can potentially benefit from therapies will be offered therapies. If resources are insufficient, all patients will be individually assessed. No one will be categorically denied care based on stereotypes, assumptions about any person’s quality of life, or judgment about a person’s “worth” based on the presence or absence of disabilities.

All patients, regardless of resources availability, will be treated with respect, care, and compassion. Triage decisions will be made without regard to basis of race, ethnicity, color, national origin, religion, sex, disability, veteran status, age, genetic information, sexual orientation, gender identity, quality of life, or any other ethically irrelevant criteria.
Additional Guidance for Crisis Standards of Care

This document is only intended to supplement the full “Nevada Crisis Standards of Care (CSC) Plan.” For additional guidance see the full document that includes the following section: Ethical Considerations, the State Disaster Medical Advisory Team (SDMAT) Roles and Responsibilities, Healthcare Resource Maximization, Triage, Emergency Medical Services, Hospitals, Out of Hospital Providers, Alternate Care Sites, Access and Functional Needs Considerations, Public Information, Communications Plans and Protocols, and Legal Considerations.

Updates to Guidance

This document is the foundation for the response and additional guidance will be published through technical bulletins as the situation develops. These supplemental guidance documents can be found on the Division of Public and Behavioral Health webpage: Technical Bulletins
Nevada Crisis Standards of Care - Code of Ethics

Overview
The NV CSC Code of Ethics was developed to assist decision-makers, healthcare providers, and healthcare practitioners in ethical decision-making processes during catastrophic public health emergencies. This code of ethics is not intended to apply to localized emergency incidents of limited duration, emergencies not impacting population health, or emergencies where critical medical resource allocation decisions are not required to protect the population’s health.

The ethical principles and code language outlined below were developed by the NV CSC Ethical and Legal Workgroup for application during catastrophic public health emergencies. The workgroup carefully considered public health ethical principles, community values obtained from feedback during the public engagement campaign, and information collected from several states during the development of the NV CSC Code of Ethics.

Application
During a catastrophic public health emergency in which the NV CSC Plan is activated, the SDMAT may develop CSC recommendations for dissemination to the public health agencies, healthcare providers, and healthcare practitioner network. The NV CSC Code of Ethics is provided to help guide decision-making and implementation processes. The NV CSC Code of Ethics is intended to supplement, not supplant, relevant existing codes of ethics for public health practitioners, healthcare facilities, healthcare providers, emergency medical services, and other entities involved in CSC responses.

Definitions of Key Terms
- Decision-makers: Persons tasked with making decisions regarding emergency responses or the allocation of scarce resources during a public health emergency on behalf of governmental bodies (e.g., federal, state, tribal, or local) or private sector entities (e.g., emergency response organizations, hospitals, healthcare providers, health insurance companies, or pharmaceutical companies).
- Healthcare practitioner: A person that furnishes healthcare or public health services.
- Healthcare provider: An organization or institution that provides healthcare or public health services.
- Public health emergency: Either (1) a declared state of emergency or public health emergency in which the health of the public is at risk; or (2) circumstances that require implementing a crisis standard of care as defined by IOM.

Core Ethical Guidelines:
1.0 Justice and Fairness. Justice and fairness are the moral and social principles that attempt to allocate scarce medical resources and services which are consistent, equitable, and non-discriminatory.

1.1 While the focus is on saving the greatest number of individuals for the benefit of the community instead of the individual, responses to disaster must not exacerbate disparities or access to care. The level of service to any one individual should be consistent with the above focus.

1.2 Persons critical to protecting the health and safety infrastructure may receive additional support to provide their services.

1.3 Distinctions among patients ought to be based on medical assessment and probable success of treatment.

1.4 The timing and content of a just system ought not to fall to individual healthcare providers.

1.5 The needs of particularly vulnerable groups should be addressed to ensure that a greater burden does not fall to those groups.

1.6 No prevailing treatment will establish the right to receive treatment. All treatment decisions ought to be based on resource availability and the best information available.
2.0 Duty to care. Healthcare practitioners have an ethical obligation to provide care during a response to a catastrophic public health emergency.

2.1 The care provided by healthcare practitioners will necessarily differ from the care they provide under conventional conditions.
2.2 Circumstances may require traditional patient-provider relationships be limited or altered.
2.3 To the extent possible, patients will not be abandoned.
2.4 Government and healthcare institutions should support healthcare practitioners in meeting conflicting duties or obligations.
2.5 Healthcare practitioners may face disproportionate burdens or greater risks for the benefit of the community. Healthcare professionals may be prioritized for support and services to enable them to provide continued service to the community.
2.6 During a catastrophic public health emergency, patients may not receive all levels of care.
2.7 Patients who are unable to receive conventional care or contingency care because capacities are overwhelmed should receive alternative forms of treatment or care, which may include palliative or comfort care if possible.

3.0 Proportionality. Burdensome requirements, (e.g., social distancing or school closures), should be commensurate with the scale of the catastrophic public health emergency and promise clear benefits that outweigh the burdens.

3.1 Government authorities should not overburden the public with restrictions. Restrictions should be as narrow as possible to address the needs of the community.
3.2 Restrictive measures will be utilized only when essential to the response.

4.0 Duty to steward resources. Decision-makers at all levels should allocate scarce resources and services to preserve their effectiveness and impact.

4.1 To the extent possible, scarce resources must be managed during a catastrophic public health emergency to minimize morbidity and mortality.
4.2 When resources are scarce, the patient who is most likely to medically benefit from the use of resources should be given priority.

5.0 Transparency. Officials should provide planning information to the community prior to a catastrophic public health emergency to facilitate public input. During such an event, officials should maintain clear communications with the community to provide situational and policy decision information.

5.1 During planning phases, officials should communicate clearly plans currently in place. Decisions should be open to public input and justifications for those decisions clearly explained.
5.2 Planning activities should be characterized by consideration of community values and priorities, response to public comment, commitment to ongoing revision of policy based on dialogue and data, and accountability for support and implementation.
5.3 During a catastrophic public health emergency, officials have an obligation to communicate to the community the decisions that have been made and the justification for those decisions.

6.0 Accountability. Agencies, healthcare practitioners, and healthcare providers at all levels of the healthcare system should accept and act upon their responsibilities.

6.1 Decision-makers and those responding to catastrophic public health emergencies, including healthcare practitioners and healthcare providers, are responsible for their actions (including failure to act).
6.2 The practitioner duty to care obligation is not absolute and practitioners may face conflicting ethical obligations, such as family obligations, performing procedures outside of a practitioner’s scope of practice, or endangerment by caring for patients.
7.0 Respect for persons. To the extent possible, basic respect of a person’s autonomy, dignity, privacy, and bodily integrity must be maintained, including honoring a patient’s wishes.

7.1 In communication with the patient and family, healthcare practitioners and healthcare provider staff should be truthful and candid about a person’s condition.

Duty to plan

8.0 Duty to plan. Government, healthcare providers, and the healthcare system have a responsibility to plan to the best of their abilities for catastrophic public health emergencies.
Emergency Medical Services
Preparedness for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19

Emergency medical services (EMS) play a vital role in responding to requests for assistance, triaging patients, and providing emergency medical treatment and transport for ill persons. However, unlike patient care in the controlled environment of a healthcare facility, care and transports by EMS present unique challenges because of the nature of the setting, enclosed space during transport, frequent need for rapid medical decision-making, interventions with limited information, and a varying range of patient acuity and jurisdictional healthcare resources.

When preparing for and responding to patients with confirmed or possible coronavirus disease 2019 (COVID-19), close coordination and effective communications are important among 911 Public Safety Answering Points (PSAPs)—commonly known as 911 call centers, the EMS system, healthcare facilities, and the public health system. Each PSAP and EMS system should seek the involvement of an EMS medical director to provide appropriate medical oversight. For the purposes of this guidance, “EMS clinician” means prehospital EMS and medical first responders. When COVID-19 is suspected in a patient needing emergency transport, prehospital care providers and healthcare facilities should be notified in advance that they may be caring for, transporting, or receiving a patient who may have COVID-19 infection.

Recommendations for 911 PSAPs
Municipalities and local EMS authorities should coordinate with state and local public health, PSAPs, and other emergency call centers to determine need for modified caller queries about COVID-19, outlined below.

Development of these modified caller queries should be closely coordinated with an EMS medical director and informed by local, state, and federal public health authorities, including the city or county health department, state health department, and CDC.

Modified Caller Queries
PSAPs or Emergency Medical Dispatch (EMD) centers (as appropriate) should question callers and determine the possibility that this call concerns a person who may have signs or symptoms and risk factors for COVID-19. The query process should never supersede the provision of pre-arrival instructions to the caller when immediate lifesaving interventions (e.g., CPR or the Heimlich maneuver) are indicated. Patients in the United States who meet the appropriate criteria should be evaluated and transported as a PUI. Information on COVID-19 will be updated as the public health response proceeds. PSAPs and medical directors can access CDC’s PUI definitions here.

Information on a possible PUI should be communicated immediately to EMS clinicians before arrival on scene in order to allow use of appropriate personal protective equipment (PPE). PSAPs should utilize medical dispatch procedures that are coordinated with their EMS medical director and with the local or state public health department.

Recommendations for EMS Clinicians and Medical First Responders
EMS clinician practices should be based on the most up-to-date COVID-19 clinical recommendations and information from appropriate public health authorities and EMS medical direction.

Patient assessment
- If PSAP call takers advise that the patient is suspected of having COVID-19, EMS clinicians should put on appropriate PPE before entering the scene. EMS clinicians should consider the signs, symptoms, and risk factors of COVID-19.
- If information about potential for COVID-19 has not been provided by the PSAP, EMS clinicians should exercise appropriate precautions when responding to any patient with signs or symptoms of a respiratory infection. Initial assessment should begin from a distance of at least 6 feet from the patient, if possible. Patient contact should be minimized to the extent possible until a facemask is on the patient. If COVID-19 is suspected, all PPE as described below should be used. If COVID-19 is not suspected, EMS clinicians should follow standard procedures and use appropriate PPE for evaluating a patient with a potential respiratory infection.
• A facemask should be worn by the patient for source control. If a nasal cannula is in place, a facemask should be worn over the nasal cannula. Alternatively, an oxygen mask can be used if clinically indicated. If the patient requires intubation, see below for additional precautions for aerosol-generating procedures.
• During transport, limit the number of providers in the patient compartment to essential personnel to minimize possible exposures.

Recommended Personal Protective Equipment (PPE)
• EMS clinicians who will directly care for a patient with possible COVID-19 infection or who will be in the compartment with the patient should follow Standard Precautions and use the PPE as described below.
Recommended PPE includes:
  o N-95 or higher-level respirator or facemask (if a respirator is not available),
    ▪ N95 respirators or respirators that offer a higher level of protection should be used instead of a facemask when performing or present for an aerosol-generating procedure
  o Eye protection (i.e., goggles or disposable face shield that fully covers the front and sides of the face). Personal eyeglasses and contact lenses are NOT considered adequate eye protection.
  o A single pair of disposable patient examination gloves. Change gloves if they become torn or heavily contaminated, and isolation gown.
    ▪ If there are shortages of gowns, they should be prioritized for aerosol-generating procedures, care activities where splashes and sprays are anticipated, and high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of EMS clinicians (e.g., moving patient onto a stretcher).
• When the supply chain is restored, fit-tested EMS clinicians should return to use of respirators for patients with known or suspected COVID-19.
• Drivers, if they provide direct patient care (e.g., moving patients onto stretchers), should wear all recommended PPE. After completing patient care and before entering an isolated driver’s compartment, the driver should remove and dispose of PPE and perform hand hygiene to avoid soiling the compartment.
  o If the transport vehicle does not have an isolated driver’s compartment, the driver should remove the face shield or goggles, gown and gloves and perform hand hygiene. A respirator or facemask should continue to be used during transport.
• All personnel should avoid touching their face while working.
• On arrival, after the patient is released to the facility, EMS clinicians should remove and discard PPE and perform hand hygiene. Used PPE should be discarded in accordance with routine procedures.
• Other required aspects of Standard Precautions (e.g., injection safety, hand hygiene) are not emphasized in this document but can be found in the guideline titled Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

Precautions for Aerosol-Generating Procedures
• If possible, consult with medical control before performing aerosol-generating procedures for specific guidance.
• An N-95 or higher-level respirator, instead of a facemask, should be worn in addition to the other PPE described above, for EMS clinicians present for or performing aerosol-generating procedures.
• EMS clinicians should exercise caution if an aerosol-generating procedure (e.g., bag valve mask (BVM) ventilation, oropharyngeal suctioning, endotracheal intubation, nebulizer treatment, continuous positive airway pressure (CPAP), bi-phasic positive airway pressure (biPAP), or resuscitation involving emergency intubation or cardiopulmonary resuscitation (CPR)) is necessary.
  o BVMs, and other ventilatory equipment, should be equipped with HEPA filtration to filter expired air.
  o EMS organizations should consult their ventilator equipment manufacturer to confirm appropriate filtration capability and the effect of filtration on positive-pressure ventilation.
• If possible, the rear doors of the transport vehicle should be opened, and the HVAC system should be activated during aerosol-generating procedures. This should be done away from pedestrian traffic.
EMS Transport of a PUI or Patient with Confirmed COVID-19 to a Healthcare Facility (including interfacility transport)

If a patient with an exposure history and signs and symptoms suggestive of COVID-19 requires transport to a healthcare facility for further evaluation and management (subject to EMS medical direction), the following actions should occur during transport:

- EMS clinicians should notify the receiving healthcare facility that the patient has an exposure history and signs and symptoms suggestive of COVID-19 so that appropriate infection control precautions may be taken prior to patient arrival.
- Keep the patient separated from other people as much as possible.
- Family members and other contacts of patients with possible COVID-19 should not ride in the transport vehicle, if possible. If riding in the transport vehicle, they should wear a facemask.
- Isolate the ambulance driver from the patient compartment and keep pass-through doors and windows tightly shut.
- When possible, use vehicles that have isolated driver and patient compartments that can provide separate ventilation to each area.
  - Close the door/window between these compartments before bringing the patient on board.
  - During transport, vehicle ventilation in both compartments should be on non-recirculated mode to maximize air changes that reduce potentially infectious particles in the vehicle.
  - If the vehicle has a rear exhaust fan, use it to draw air away from the cab, toward the patient-care area, and out the back end of the vehicle.
  - Some vehicles are equipped with a supplemental recirculating ventilation unit that passes air through HEPA filters before returning it to the vehicle. Such a unit can be used to increase the number of air changes per hour (ACH).
- If a vehicle without an isolated driver compartment and ventilation must be used, open the outside air vents in the driver area and turn on the rear exhaust ventilation fans to the highest setting. This will create a negative pressure gradient in the patient area.
- Follow routine procedures for a transfer of the patient to the receiving healthcare facility (e.g., wheel the patient directly into an examination room).

Documentation of patient care

- Documentation of patient care should be done after EMS clinicians have completed transport, removed their PPE, and performed hand hygiene.
  - Any written documentation should match the verbal communication given to the emergency department providers at the time patient care was transferred.
- EMS documentation should include a listing of EMS clinicians and public safety providers involved in the response and level of contact with the patient (for example, no contact with patient, provided direct patient care). This documentation may need to be shared with local public health authorities.

Cleaning EMS Transport Vehicles after Transporting a PUI or Patient with Confirmed COVID-19

The following are general guidelines for cleaning or maintaining EMS transport vehicles and equipment after transporting a PUI:

- After transporting the patient, leave the rear doors of the transport vehicle open to allow for sufficient air changes to remove potentially infectious particles.
  - The time to complete transfer of the patient to the receiving facility and complete all documentation should provide sufficient air changes.
- When cleaning the vehicle, EMS clinicians should wear a disposable gown and gloves. A face shield or facemask and goggles should also be worn if splashes or sprays during cleaning are anticipated.
• Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly, to include the provision of adequate ventilation when chemicals are in use. Doors should remain open when cleaning the vehicle.

• Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered, hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product’s label) are appropriate for severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2) in healthcare settings, including those patient-care areas in which aerosol-generating procedures are performed.

• Products with EPA-approved emerging viral pathogens claims are recommended for use against SARS-CoV-2. Refer to List N on the EPA website for EPA-registered disinfectants that have qualified under EPA’s emerging viral pathogens program for use against SARS-CoV-2.

• Clean and disinfect the vehicle in accordance with standard operating procedures. All surfaces that may have come in contact with the patient or materials contaminated during patient care (e.g., stretcher, rails, control panels, floors, walls, work surfaces) should be thoroughly cleaned and disinfected using an EPA-registered hospital grade disinfectant in accordance with the product label.

• Clean and disinfect reusable patient-care equipment before use on another patient, according to manufacturer’s instructions.

• Follow standard operating procedures for the containment and disposal of used PPE and regulated medical waste.

• Follow standard operating procedures for containing and laundering used linen. Avoid shaking the linen.

Follow-up and/or Reporting Measures by EMS Clinicians After Caring for a PUI or Patient with Confirmed COVID-19

EMS clinicians should be aware of the follow-up and/or reporting measures they should take after caring for a PUI or patient with confirmed COVID-19:

• State or local public health authorities should be notified about the patient so appropriate follow-up monitoring can occur.

• EMS agencies should develop policies for assessing exposure risk and management of EMS personnel potentially exposed to SARS-CoV-2 in coordination with state or local public health authorities. Decisions for monitoring, excluding from work, or other public health actions for HCP with potential exposure to SARS-CoV-2 should be made in consultation with state or local public health authorities. Refer to the 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 2019 (COVID-19) for additional information.

• EMS agencies should develop sick-leave policies for EMS personnel that are nonpunitive, flexible, and consistent with public health guidance. Ensure all EMS personnel, including staff who are not directly employed by the healthcare facility but provide essential daily services, are aware of the sick-leave policies.

• EMS personnel who have been exposed to a patient with suspected or confirmed COVID-19 should notify their chain of command to ensure appropriate follow-up.
  o Any unprotected exposure (e.g., not wearing recommended PPE) should be reported to occupational health services, a supervisor, or a designated infection control officer for evaluation.
  o EMS clinicians should be alert for fever or symptoms consistent with COVID-19. If symptoms develop, they should self-isolate and notify occupational health services and/or their public health authority to arrange for appropriate evaluation.

EMS Employer Responsibilities

The responsibilities described in this section are not specific for the care and transport of PUIs or patients with confirmed COVID-19. However, this interim guidance presents an opportunity to assess current practices and verify that training and procedures are up-to-date.
• EMS units should have infection control policies and procedures in place, including describing a recommended sequence for safely donning and doffing PPE.
• Provide all EMS clinicians with job- or task-specific education and training on preventing transmission of infectious agents, including refresher training.
• Ensure that EMS clinicians are educated, trained, and have practiced the appropriate use of PPE prior to caring for a patient, including attention to correct use of PPE and prevention of contamination of clothing, skin, and environment during the process of removing such equipment.
• Ensure EMS clinicians are medically cleared, trained, and fit tested for respiratory protection device use (e.g., N95 filtering facepiece respirators), or medically cleared and trained in the use of an alternative respiratory protection device (e.g., Powered Air-Purifying Respirator, PAPR) whenever respirators are required. OSHA has a number of respiratory training videos.
• EMS units should have an adequate supply of PPE.
• Ensure an adequate supply of or access to EPA-registered hospital grade disinfectants (see above for more information) for adequate decontamination of EMS transport vehicles and their contents.
• Ensure that EMS clinicians and biohazard cleaners contracted by the EMS employer tasked to the decontamination process are educated, trained, and have practiced the process according to the manufacturer’s recommendations or the EMS agency’s standard operating procedures.

Full CDC Guidance: Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States
Long Term Care Facilities
What facilities should do when there are cases in their facility or sustained transmission in the community.

Healthcare Personnel Monitoring and Restrictions:
- Implement universal use of facemask for HCP while in the facility.
- Consider having HCP wear all recommended PPE (gown, gloves, eye protection, N95 respirator or, if not available, a facemask) if adequate resources are available, for the care of all residents, regardless of presence of symptoms. Implement protocols for extended use of eye protection and facemasks.
- If there is a shortage of PPE, standard and droplet precautions should be taken for all patients with signs or symptoms of COVID-19.

Resident Monitoring and Restrictions:
- Encourage residents to remain in their room. If there are cases in the facility, restrict residents (to the extent possible) to their rooms except for medically necessary purposes.
  - If they leave their room, residents should wear a facemask, perform hand hygiene, limit their movement in the facility, and perform social distancing (stay at least 6 feet away from others).
- Implement protocols for cohorting ill residents with dedicated HCP.

Long-Term Care Facilities Preparedness
Nursing homes and other long-term care facilities can take steps to assess and improve their preparedness for responding to coronavirus disease 2019 (COVID-19). Each facility will need to adapt this checklist to meet its needs and circumstances based on differences among facilities (e.g., patient/resident characteristics, facility size, scope of services, hospital affiliation). This checklist should be used as one tool in developing a comprehensive COVID-19 response plan. Information from state, local, tribal, and territorial health departments, emergency management agencies/authorities, and trade organizations should be incorporated into the facility’s COVID-19 plan. Comprehensive COVID-19 planning can also help facilities plan for other emergency situations.

- Limit how germs can enter the facility. Cancel elective procedures, use telemedicine when possible, limit points of entry and manage visitors, screen patients for respiratory symptoms, encourage patient respiratory hygiene using alternatives to facemasks (e.g., tissues to cover cough).
- Isolate symptomatic patients as soon as possible. Set up separate, well-ventilated triage areas, place patients with suspected or confirmed COVID-19 in private rooms with door closed and private bathroom (as possible), prioritize AIIRs for patients undergoing aerosol-generating procedures.
- Protect healthcare personnel. Emphasize hand hygiene, install barriers to limit contact with patients at triage, cohort COVID-19 patients, limit the numbers of staff providing their care, prioritize respirators and AIIRs for aerosol-generating procedures, implement PPE optimization strategies to extend supplies.


Long Term Care Facility Guidance
Keep COVID-19 from entering your facility:
- Restrict all visitors except for compassionate care situations (e.g., end of life).
- Restrict all volunteers and non-essential healthcare personnel (HCP), including consultant services (e.g., barber).
- Actively screen all HCP for fever and respiratory symptoms before starting each shift; send them home if they are ill.
- Cancel all field trips outside of the facility.
- Have residents who must regularly leave the facility for medically necessary purposes (e.g., residents receiving hemodialysis) wear a facemask whenever they leave their room, including for procedures outside of the facility.
Identify infections early:

- Actively screen all residents at least daily for fever and respiratory symptoms; immediately isolate anyone who is symptomatic.
  - Long-term care residents with COVID-19 may not show typical symptoms such as fever or respiratory symptoms. Atypical symptoms may include: new or worsening malaise, new dizziness, diarrhea, or sore throat. Identification of these symptoms should prompt isolation and further evaluation for COVID-19 if it is circulating in the community.
- Notify the health department if: severe respiratory infection, clusters (≥1 resident(s) and/or HCP) of respiratory infection, or individuals with known or suspected COVID-19 are identified.

Prevent spread of COVID-19:

- Cancel all group activities and communal dining.
- Enforce social distancing among residents.
- When COVID-19 is reported in the community, implement universal facemask use by all HCP (source control) when they enter the facility;
  - If facemasks are in short supply, they should be prioritized for direct care personnel. All HCP should be reminded to practice social distancing when in break rooms or common areas.
- If COVID-19 is identified in the facility, restrict all residents to their room and have HCP wear all recommended PPE for all resident care, regardless of the presence of symptoms. Refer to strategies for optimizing PPE when shortages exist.
  - This approach is recommended to account for residents who are infected but not manifesting symptoms. Recent experience suggests that a substantial proportion of long-term care residents with COVID-19 do not demonstrate symptoms.
  - When a case is identified, public health can help inform decisions about testing asymptomatic residents on the unit and in the facility.

Assess supply of personal protective equipment (PPE) and initiate measures to optimize current supply:

- For example, extended use of facemasks and eye protection or prioritization of gowns for certain resident care activities. See guidance later in this document.

Identify and manage severe illness:

- Facility performs appropriate monitoring of ill residents (including documentation of pulse oximetry) at least 3 times daily to quickly identify residents who require transfer to a higher level of care.

Actions when an Outbreak is Identified in a Long-Term Care Facility

1. All symptomatic individuals, staff or residents, tested or not, MUST be immediately isolated. Staff should self-isolate at home.
2. Residents with mild/moderate symptoms should be isolated in a special section of the nursing home.
3. Staff or residents with severe symptoms (difficulty breathing, chest pain, bluish lips...) should be referred to hospitals for critical healthcare and testing.
4. All contacts (residents, visitors, family members, other) who could have been exposed to a symptomatic individual, or to an individual who tested positive for COVID-19, must be immediately quarantined – residents must be moved to a quarantined section of the nursing home. Staff who have been exposed and are asymptomatic can continue to work, but they must be monitored twice daily for signs and symptoms and use a face covering while in the facility. If symptoms develop, staff must inform employer, and their employer must notify the Office of Public Health Investigations and Epidemiology (OPHIE).
5. Asymptomatic residents should be in a separate part of the facility and should be observed to identify any early respiratory symptoms for 14 days since last day of contact.
6. No symptomatic person, staff or visitor, should be allow inside the facility.
7. There should be 3 different sections in the facility (4 sections if new admissions are allowed):
a. Isolation for symptomatic individuals and those who tested positive for COVID-19. Individuals cannot leave this section until they have met the clearance criteria.
b. Quarantine for contacts who will be quarantined for 14 days.
c. General population for all other residents who have no symptoms; were not contacts to any COVID-19 case and didn't test positive for COVID-19.
d. If new admissions are allowed, these individuals must be in a separate observation section for 14 days prior to being allowed in the general population. If they receive a positive test, they should be moved to the isolation section immediately.

8. Environmental decontamination especially shared surfaces (tables, doorknobs, light switches, remote controls, toilets, etc.) should be cleaned and disinfected at least twice a day with EPA registered chemical.

9. No socialization during meal times or in TV area (6’ Rule).

Additional Actions for Outbreaks in Behavioral Healthcare Facilities

1. Whenever possible, residents in long-term behavioral healthcare facilities should not be isolated in their rooms. Isolation and loneliness may exacerbate depression, anxiety, self-harm, and suicidal ideation.

2. As soon as the outbreak is identified, individualized treatment plans should be updated for all residents with recommendations for use of PPE given the level of risk and current precautions being taken for that individual. Use of a mask is not recommended for individuals on observation for suicidal ideation, plan, or intent or for self-harm.

3. Masks or face coverings should be worn in common areas by all residents for whom this would be safe.

4. Staff at behavioral healthcare facilities for children and adolescents should ensure that children understand the basics of virus transmission and why it is important to follow staff directives about hygiene and social distancing.

5. Special attention should be given to the age and developmental level of children when providing education and directives.

6. Handwashing by children should be supervised to ensure it is completed in a manner consistent with infection control guidelines.

State and local health authorities may recommend facility-wide testing of patients and staff to identify the severity of the outbreak and to properly implement public health interventions in the facility. All facilities should comply with the request for information and comply with intervention guidelines in this document and given by state and local health authority staff. Specific guidance will be given on a case by case basis when additional interventions are necessary.

Resources: Finding the Right Words to Talk with Children and Teens about Coronavirus
Separate Units to Prevent and Contain Transmission of COVID-19

Note: The use of the term “resident” may be replaced with “patient”, as applicable.

It is important to implement strategies that help prevent the spread of COVID-19 in skilled nursing facilities; assisted living; residential facilities and other communal living settings including psychiatric and forensic psychiatric hospitals. Placing residents in designated separate units within facilities is proven effective to prevent the spread and contain COVID-19 outbreaks. To the extent possible, each facility should establish at least three separate units: 1) to isolate COVID-19 confirmed cases (Isolation Unit); 2) to quarantine those who could have been exposed to COVID-19 (Quarantine Unit); 3) a COVID-19 Free Unit for residents that do not have COVID-19 (includes residents that have fully recovered from COVID-19). The facility must make every effort to provide dedicated staff for each unit. It is mandatory that the facility assigns dedicated staff to the Isolation/Confirmed COVID-19 Unit.

It is recognized that due to staffing shortages or building design, such as in smaller residential facilities, having three separate units for residents may not be possible; therefore, it is important to understand the reasons for grouping residents and have a process in place to identify, respond and manage residents with suspected or confirmed COVID-19.

The virus continues to rapidly spread within communities, so facilities must implement plans based on national infection control guidelines such as those of the Centers for Disease Control and Prevention (CDC). The facility plan must be in place prior to COVID-19 cases being identified among residents and/or staff. Items addressed in the plan should include, but are not limited to, rapidly identifying residents with suspected or confirmed COVID-19, appropriate placement within a unit based on COVID-19 status (including what to do if facility is close to full capacity and several residents become positive), social distancing, environmental cleaning and disinfection, individual hygiene, facility entry and screening procedures for visitors and staff, use of face masks/face coverings by staff, residents and visitors, and proper use of personal protective equipment (PPE) by caregivers.

The Division of Public and Behavioral Health has developed a template that may be used by residential facilities for groups to help them develop an individualized infection control and prevention plan for their facility or to compare it to a facility’s existing plan to see if the major components have been addressed. The use of this template is not a requirement but may be used as a guide to help a facility develop its own plan. The template, Recommended Infection Prevention and Control Plan for Group Homes Coronavirus Disease 2019 (COVID-19) Response, can be found at:

Confirmed COVID-19 Unit (Isolation Unit)
Residents with confirmed COVID-19 are residents who tested positive for COVID-19. Residents with confirmed COVID-19 should be placed in this unit whether they have symptoms or do not have symptoms. Caregivers in this unit must use full PPE in accordance with CDC recommendations. Residents must be closely monitored to rapidly detect any new symptoms in residents that did not have symptoms and to ensure symptoms do not worsen in those that do have symptoms. A resident cannot be moved out of the Confirmed COVID-19 Unit until the CDC criteria for the Discontinuation of Transmission-Based Precautions and Disposition of Patients with COVID-19 in Healthcare Settings4 is met.

Quarantine (Observation) Unit for Residents with Known Exposure to COVID-19
The Quarantine Unit should house only those who were exposed to COVID-19. All residents should be tested for COVID-19 as soon as possible and should continue to be monitored for the eventual development of symptoms. Residents who test positive should be transferred to the Confirmed COVID-19 Unit. Residents who test negative must complete the 14-day quarantine period starting from their most recent exposure to COVID-19.

Residents in the Quarantine Unit who develop symptoms consistent with COVID-19 should not be moved and should be isolated in their own single occupant room pending results of COVID-19 testing. If there is a roommate, the resident with symptoms may only be moved to a single occupant room within the same Quarantine Unit and only if the move can be made without displacing any other residents. The resident’s roommate will be considered exposed to COVID-19. If the resident and roommate remain in the same room, put up barriers, distance beds if possible, practice hand hygiene and use full PPE in accordance with CDC recommendations which is changed between residents. If any resident tests positive...
for COVID-19, move the resident to the Confirmed COVID-19 unit. The resident should not be placed in a room with a new admission or be moved to the confirmed COVID-19 unit unless they are confirmed to have COVID-19 by testing.

After identifying a confirmed COVID-19 case (with positive test results) in this Quarantine Unit, all residents and caregivers must be retested for COVID-19. Even if their test results are negative, residents must complete 14 days of quarantine starting from their most recent exposure to this newly identified COVID-19 case.

**Newly admitted/readmitted residents with no symptoms of COVID-19 with an undetermined exposure history to COVID-19 should not be placed in the Confirmed COVID-19 Unit or the Quarantine Unit.** Depending on the prevalence of COVID-19 in the community, this might include placing the resident in a single-occupant room or in a separate observation area so the resident can be monitored for evidence of COVID-19. Caregivers should wear an N95 or higher-level respirator (or face mask if a respirator is not available), eye protection (i.e., goggles or a disposable face shield that covers the front and sides of the face), gloves, and gown when caring for these residents. Residents can be transferred out of the observation area to the main facility if they remain free from fever and without symptoms for 14 days after their admission. Testing at the end of this period can be considered to increase certainty that the resident is not infected.

**Admission/Readmission Scenarios**

1. Resident is admitted to your facility from the community setting with no signs and symptoms of COVID-19, and they don’t know if they have been exposed to COVID-19 through interactions with other people. In this scenario follow the newly admitted/readmitted resident’s precautions.

2. Resident is readmitted to your facility from the hospital after fully recovering from COVID-19. The resident meets the CDC criteria for the Discontinuation of Transmission-Based Precautions and Disposition of Patients with COVID-19 in Healthcare Settings and the resident’s symptoms have resolved. In this scenario place the resident in the COVID-19 Free Unit.

3. Resident has COVID-19 (not resolved) and the resident meets the level of care for the facility type for which the resident is being admitted. The facility has the appropriate staffing and PPE to safely accept the resident. In this scenario the resident is placed in the Confirmed COVID-19 Unit (Isolation Unit).

**COVID-19 Free Unit**

The COVID-19 Free Unit is reserved only for residents who do not currently have COVID-19 infection; do not have symptoms of COVID-19 and tested negative for COVID-19; and were not exposed to and did not have contact with anyone who has COVID-19. Residents that were suspected or confirmed to have COVID-19 whose Transmission-Based Precautions have been discontinued AND the resident’s symptoms have resolved, may also be placed in this COVID-19 Free Unit.

Identifying residents that belong in the COVID-19 Free Unit could be challenging, especially during outbreaks that include cases among residents and facility staff. Therefore, it is important to obtain a thorough resident history to help determine a resident’s placement in a specific unit or single-occupant room, as appropriate. If there is still doubt about where to place a resident within the facility, the facility can request guidance from the Division of Public and Behavioral Health’s Office of Public Health Investigations and Epidemiology by email at DPBHHAI@health.nv.gov.

**Definition:** A COVID-19 suspected case means individuals with COVID-19 signs and symptoms who don’t have a COVID-19 test result and those with a negative test result but who continue to display COVID-19 signs and symptoms.

**Resources:**

Healthcare Workforce

Reassign HCPs to Needed Areas

Healthcare professionals may have experience that will be useful for patients needing a higher level of care than where they are currently assigned. Hospitals should grant opportunities for these highly skilled staff members to be reassigned to assist in other areas of the hospital or healthcare system to best meet the needs of the current situation. Licensing boards should consider allowing healthcare professionals, like APRNs, to advance to full independent practice for the duration of the crisis.

Medical Reserve Corp

During the COVID-19 response, the Nevada Medical Reserve Corp should be call upon to fill vital roles in the healthcare system, including healthcare professionals, behavioral health professionals, and other volunteers with skills and experience that may be helpful for a coordinated response. Volunteers should register at [State Emergency Registry of Volunteers – Nevada (SERV-NV)](https://www.serve-vnv.org). Medical Reserve Corp is a cadre of medical and non-medical volunteers who are pre-identified, credentialed, trained, background-checked, and ready to be deployed in case of a disaster. The Department of Health and Human Services, Southern Nevada Health District, Washoe County Health District, Carson City Health and Human Services and partner agencies may call upon these volunteers to aid in the response.

Students Going into the Healthcare Field

Students may become a valuable workforce during the COVID-19 crisis. State and local officials should work with the dean of the medical schools in the state to assess how these highly motivated and medically trained students may be used during a crisis. Examples of possible roles they may be used for:

- **Telemedicine** – They may be able to triage calls, assess severity of patient, and direct potentially infected individuals to the resources they need.
- **Non-COVID-19 Healthcare** – In extreme circumstances and in concurrence with the Dean of their respective medical school, medical students may work under a resident physician in a healthcare setting where COVID-19 is not likely to be present. This will help ease the burden of the other healthcare personnel that can be better used on COVID-19 patients in an intensive care unit or other COVID-19 response needs.
- **Prior Certifications** – Many medical students may have prior experience and certifications that may be leveraged in a crisis. Some of these may include EMT, Paramedic, nurse, physician assistant, etc.
- **Student Volunteers** – This population may be used in other areas in the community needing additional resources to perform supportive services.

Out of State/Country Reciprocity

As the situation reaches the crisis stage of the COVID-19 response, reciprocity of licensure should be considered for healthcare personnel holding licenses in other states and possibly other countries. In advance of the need, this will require steps to be taken by the licensing boards to ensure the ability to verify credentials and licenses of incoming healthcare personnel. Licensing boards for healthcare professionals should extend temporary licenses to decrease the amount of time needed to get workforce resources in place.

Strategies to Mitigate Healthcare Personnel Staffing Shortages

During a CSC response, the use of healthcare resources (i.e., space, staff, and supplies) may have to be limited to do the greatest good for the greatest number of people. Staff may be unavailable or unable to adequately care for volume of patients even with extension techniques (brief deferrals of non-emergency care, supervising broader groups of patients, etc.). Hospitals may need to adjust staffing levels and staffing types to accommodate the patient volume. As the COVID-19 pandemic progresses, staffing shortages will likely occur due to HCP exposures, illness, or need to care for family members at home. Healthcare facilities must be prepared for potential staffing shortages and have plans and processes in place to mitigate them, including considerations for permitting HCP to return to work without meeting all return to work criteria above. Refer to your local emergency manager for further guidance on acquiring potential additional staffing utilizing voluntary health care providers. As part of this, asymptomatic HCP with a recognized COVID-19 exposure might be permitted...
to work in a crisis capacity strategy to address staffing shortages if they wear a facemask for source control for 14 days after the exposure. This time period is based on the current incubation period for COVID-19, which is 14 days.
Behavioral Health

The psychological components of infectious disease and pandemic events will be among the most prevalent, enduring health consequences. Specific behavioral health (BH) response strategies are needed and behavioral health professionals may be called upon to aid in the response to a crisis. It may become necessary to call upon volunteers in the community to assist with behavioral health resources.

Main issues identified

- Due to the potential for significant mortality and morbidity related to COVID-19, an increase in psychological morbidity will occur. Psychological distress and increased mental health issues will quickly exceed capacity of traditional mental health service delivery approaches and capacity. Much of the traditional mental health services have converted to the primary provision of mental health services using telehealth to limit the potential exposure to COVID-19. Telehealth assessment and intervention are encouraged whenever possible to limit the use of scarce PPE and to reduce the potential for exposure in the community.
- While Psychological First Aid and Crisis Counseling may be of benefit to many, more intensive behavioral health services may be needed. Allocation of all available behavioral health services must be conducted based upon individual need and in accordance with the provision of services in the least restrictive environment.
- Healthcare workers and first responders are at increased risk for mental health consequences during a pandemic event. Strategies such as peer support and wellness monitoring should be offered to first responders and medical providers to reduce the impacts of exposure to difficult, traumatic experiences.
- Public health containment strategies require behavioral adherence by the general public and the healthcare workforce. Clear, timely, accurate information related to how to adhere to public health recommendations must accompany changing requirements regarding mitigation strategies.
- As COVID-19 evolves, additional at-risk groups, in addition to traditional special populations, will include those experiencing traumatic loss and complicated bereavement for those coping with seriously ill family/self/friends, and special health care conditions. Unique to this pandemic is the stress on families due to the prolonged period of teleworking parents, balancing childcare and homeschooling; this and other factors may lead to an increase in child abuse/neglect. Social and physical isolation may contribute to increased anxiety, depression and feelings of hopelessness/helplessness, disorientation, and increase the risk for substance use. Customized strategies are needed with different populations and must be based upon needs and access to adequate behavioral health resources.

Considerations for Behavioral Health

During the COVID-19 response, there are 3 focus areas that need to be considered for behavioral health: the general public, healthcare professionals, and the continuation of care for persons with serious mental illnesses and substance dependency. The Medical Advisory Team (MAT) should develop a response around the following:

MAT Considerations for Behavioral Health

1. Public messaging and recommendations for healthcare and behavioral health practitioners regarding the behavioral impact on the general population.
2. Behavioral health impact on the responder and healthcare provider community.
3. Continuation of care for persons with serious mental illnesses and individuals receiving treatment (including medication) for substance dependency.

Behavioral Health Impact on the General Population

During a CSC incident, while health care facilities are experiencing severe medical surge conditions, the need for behavioral health care strategies becomes a critical adjunct to patients requiring medical treatment for physical illness.
or injury, as well as for primary care assessment and treatment of behavioral health conditions. Many people may require behavioral health services to manage grief and post-traumatic stress symptoms. The impact of a crisis will result in a substantial range of variability in the ability of people to respond and function during the crisis. Community resilience strategies that encourage family and neighborhood outreach may be beneficial in enhancing social support systems and reducing stress associated with an emergency incident.

**Behavioral Health and Pediatric Populations**

Children are an especially vulnerable population to mental health risks following a disaster. It is important to recognize risk factors for presentation of psychological distress. During or immediately following a disaster, children may exhibit a range of adjustment difficulties. The COVID-19 pandemic should be conceptualized as an Adverse Childhood Experience (ACE), a traumatic event, to which all children have been exposed.

For many children, reactions to disasters are brief and represent normal reactions to abnormal events. Normal symptom presentations in children after a disaster or traumatic event include anxiety about their own safety and the safety of family and close friends; sadness, grief, and anger; feeling frightened, confused, and insecure; and behavior problems. Younger children may return to earlier behavior patterns (e.g., bedwetting, sleep problems, separation anxiety). Toddlers and young children may re-enact elements of the traumatic event through play. Teenagers may engage in risky behaviors or drug/alcohol use.

A smaller number of children are at risk for more enduring psychological distress or persistent traumatic stress reactions. Common markers of potential mental health-related issues in children following a disaster or traumatic event include:

- Refusal to return to school and clinging behavior;
- Persistent fears related to the disaster;
- Sleep disturbances such as nightmares, screaming during sleep, and bed wetting;
- Loss of concentration and irritability;
- Jumpiness or startling easily;
- Behavior problems, such as misbehaving in ways that are not typical for the child;
- Physical complaints with no physical cause; and
- Withdrawal from family and friends, sadness, listlessness, decreased activity.

Healthcare providers should inquire about children’s symptoms and adjustment and assess for any ongoing stressors that may complicate recovery. Strategies to address stress reactions include helping children to understand what has happened; providing Psychological First Aid; protecting children from excessive media reports related to the pandemic; and promoting resiliency. If multiple concerns or risk factors for ongoing traumatic stress reaction are present, healthcare providers should arrange a referral for further psychological assessment and/or mental health support.

**Behavioral Health Impact on Responders and Medical Providers**

Behavioral health strategies should consider the unique impacts and behavioral health consequences of catastrophic public health emergencies on responders and healthcare providers. Responders and healthcare providers may be especially prone to post traumatic stress and other psychosocial impacts. Strategies for addressing the behavioral health needs of these groups should consider the identification, monitoring, and intervention systems tailored toward stress reduction, stress management, and mitigation of posttraumatic stress disorder. Peer-to-peer support, counseling, and other behavioral health support services, such as CISM, may be useful for responders and providers.

**Impact on the Seriously Mentally Ill Population and Continuation of Care**

People with serious mental illness (SMI) will likely be among disaster victims, including the injured or ill, or experience emotional crises related to the disaster. Many people require ongoing behavioral health treatment or services due to SMI or other behavioral health conditions. Ongoing treatment or services may be disrupted during a disaster, leaving people with difficulties in managing their conditions or obtaining needed prescription medications. As behavioral health
providers and social workers address the needs of disaster victims, including palliative and comfort care patients, there will be an impact on the overall availability of resources for behavioral healthcare within the state.

Behavioral Health and Public Information

Incident specific public communication strategies should be developed and disseminated to help people manage stress, clarify the incident situation, and direct listeners and viewers to additional resources as necessary. During CSC, the MAT should fully integrate behavioral health content experts in decision making and response implementation. This is especially important during situations where:

- A transition must be made in the fair and just allocation of resources, and care when circumstances will not allow for the optimal level of care for all;
- There are situations resulting in large-scale incapacitation or death of health care workers or first responders;
- Events produce an extremely large numbers of fatalities;
- Events result in a potential long-term or unknown health consequences;
- There are deaths or incapacity of key leaders or decision-makers; and
- There are events that evoke extreme emotions, such as terrorism or violence that impacts the most vulnerable populations, e.g. children.

Mental Health Triage

Research indicates that between 30 and 40 percent of people directly impacted by a major disaster are at risk of developing new, clinically diagnosable mental illness, such as depression or post-traumatic stress disorder. Early triage, intervention, and referral to services can reduce the risk of mental health disorders in disaster victims. An important component of managing medical surge following a major disaster is the ability to identify people at high risk for development of mental health conditions and managing the demand for mental health services by people who are experiencing a mental health crisis.

One strategy that may be considered by the MAT is the recommendation of a mental health triage system such as Fast Mental Health Triage Tool (FMHT), and the Alsept-Price Mental Health Scale (APMHS). Mental health triage systems are useful in identifying individuals experiencing a mental health crisis or at risk for chronic mental health disorders and triaging them to the correct mental health services.

Whenever possible, alternative care sites should be made available to divert behavioral health patients from emergency rooms for triage evaluation. Triage for behavioral health emergencies must prioritize patient and provider safety while also ensuring individuals are offered needed care. Inpatient psychiatric admissions should be reserved for individuals who require the highest level of care to achieve safety and stabilization. Outpatient and residential services should be made available for individuals who need to be engaged in care but do not meet criteria for inpatient hospitalization. Emergency room boarding for behavioral health patients should be avoided whenever possible to limit patient exposure to COVID-19. Triage assessments for behavioral health patients arriving in the emergency room may be conducted via telehealth to provide decision support to the attending provider. Use of crisis behavioral health holds (L2K) should be reserved for individuals who meet criteria for such hold and for only the duration the criteria for such a hold is met.

Psychological First Aid

Psychological First Aid is designed to reduce the initial distress caused by a traumatic event and to foster short- and long-term adaptive functioning and coping. Psychological First Aid is based on the understanding that individuals affected by traumatic events will experience a wide range of initial reactions that may cause enough distress to interfere with coping. It is designed to be used in the immediate aftermath of a traumatic event. Its basic objective are to establish connection in a compassionate and non-intrusive manner, enhance immediate and ongoing safety, provide physical and emotional comfort, calm and orient emotionally overwhelmed and distraught survivors, identify the survivors immediate needs and concerns, offer practical assistance to help survivors address immediate needs, connect survivors to social support networks and family, support adaptive coping, provide information, be clear about availability, and link survivor to another team or recovery support system. Psychological First Aid Counselors are available in Southern Nevada by contacting the Southern Nevada Regional Behavioral Health Coordinator; and a similar
resource, Crisis Counselors, are available in Northern and Rural Nevada by contacting the Statewide Behavioral Health Coordinator.

Resources:

- Tips for Social Distancing, Quarantine, And Isolation During an Infectious Disease Outbreak
- Managing Bereavement around COVID-19
Laboratory Testing

Due to a severe lack in testing capacity up until now, the National Centers for Disease Control and Prevention (CDC) previously prioritized COVID-19 testing only for symptomatic patients. According to the Annals of Internal Medicine, symptoms might not develop for five to six days — or even two weeks after contracting COVID-19. The WHO reports show that pre-symptomatic and asymptomatic cases can transmit this virus one to three days before they start showing symptoms. About 75% of patients who tested positive without showing symptoms turned out to be pre-symptomatic, displaying coughing, fatigue, fever and other signs of COVID-19 in a later follow-up exam. Transmission from asymptomatic and pre-symptomatic nursing facility residents, who were not recognized as having SARS-CoV-2 infection and therefore not timely isolated, might have contributed to further spread, according to CDC MMWR April 2nd – 2020 research published.

Focusing solely on testing symptomatic patients may not be sufficient to prevent further transmission of COVID-19. Testing expansion is urgently required to determine the impact of asymptomatic cases on viral spread. Asymptomatic, subclinical and pre-symptomatic COVID-19 infections might contribute to the ongoing viral transmission. Current symptom-based screening strategies seem to be inadequate to identify or early detect all COVID-19 cases to prevent viral spread in the community and the transmission of infection within skilled nursing homes and other residential facilities.

Expansion of Testing to Asymptomatic Individuals

As testing capacity continues to increase the state healthcare and public health systems must extend COVID-19 testing to areas with unmet needs. Increasing testing availability will allow clinicians to consider testing for wider groups including mildly symptomatic, asymptomatic, and pre-symptomatic patients. To early identify more COVID-19 cases, testing should be extended to individuals with and without symptoms. Focused activities should be implemented to reduce and ultimately prevent further transmission, including testing of asymptomatic high-risk vulnerable individuals and those who could have been exposed to COVID-19 cases. Older individuals with comorbidities; racial/ethnic underserved, uninsured and under-insured minorities; individuals with physical, social, psychiatric, behavioral and/or emotional challenges seem to exhibit higher risks for contracting and dying due to COVID-19 infections. Subsequently they should be regarded as high priority for testing and early detection.

Dramatic measures are necessary to establish a statewide system for universal and timely testing of all symptomatic and high-risk asymptomatic individuals. Two kinds of tests are available for COVID-19: viral tests and antibody tests. Viral tests can identify a current infection. While, antibody tests can identify a previous infection, it may take a COVID-19 patient 1-3 weeks, post infection, to develop antibodies. Additionally, it is unknown if having such antibodies against the virus provides protection against reinfection and how long such protection might last.

Priorities for Testing

High Priority

• Hospitalized patients
• Healthcare facility workers, workers in congregate living settings, and first responders with symptoms
• Residents in long-term care facilities or other congregate living settings, including prisons and shelters, with symptoms
• Persons identified through public health clusters and select contact investigations

Priority

• Persons with symptoms of potential COVID-19 infection, including: fever, cough, shortness of breath, chills, muscle pain, new loss of taste or smell, vomiting or diarrhea and/or sore throat
• Persons without symptoms who are prioritized by the local/state health departments or clinicians, for any reason, including, but not limited to: public health monitoring, sentinel surveillance, or screening of other asymptomatic individuals according to state and local community plans.
COVID-19 data and test results that include those who don’t show symptoms can provide a more accurate understanding of how the virus is spreading in the community. Such critical findings will inform future policies and guidelines. Identifying asymptomatic cases will provide a better understanding of the virus’s impacts on the community. Expansion in testing will play a major part in influencing the state’s continuous adjustment of prevention, community mitigation and control measures. This additional testing expansion may also lead to a larger number of residents made aware of their conditions, knowledge that could contribute to focused social distancing and further slowing community transmissions. Proceeding timely, cautiously, carefully and incrementally with testing, tracing and containment enhances our attainments and helps avoid setbacks.

All Skilled Nursing Residents and Staff to be Tested for COVID-19

To give health officials more information in working to protect Nevada’s citizens, the state’s Chief Medical Officer is requiring COVID-19 testing for the more than 60 skilled nursing facilities for both residents and staff, by Friday, May 29, 2020.

Nationwide, nursing homes have been severely impacted by COVID-19, with outbreaks causing high rates of infection, morbidity, and mortality. The vulnerable nature of the nursing home population, combined with the inherent risks of congregate living in a skilled nursing setting, requires aggressive efforts to limit COVID-19 exposure and prevent the spread of COVID-19 within nursing homes and beyond into the community. The information gleaned from statewide testing of all nursing facility residents and staff will enable health officials to track the disease, enable businesses to improve safety, and enable individuals to care for their own well-being.

The Nevada Department of Health and Human Services is working with local health authorities and emergency managers to conduct testing. If facilities are found to have positive or suspected cases, the facility will be notified of the need to separate and cohort patients and staff; this means staff may not work in both areas of the facility (COVID-19 positive and negative). In some cases, the layout of a facility may make separation difficult to accomplish, in which case health authorities will consult with the facility to determine the best way to accomplish cohorting. Health officials then will look at the facility’s infection control practices and investigate the root cause of the spread. Environmental swabbing also may be used as a follow-up to assist facilities with outbreaks in determining where they may have the virus within the facility, especially in high-touch areas.

County emergency managers will contact each facility with information about a specific process for testing.

Testing Framework for Inmates and Staff at Nevada Department of Corrections

The Nevada Department of Corrections (NDOC), in partnership with the Nevada State Public Health Laboratory (NSPHL) and the Nevada Department of Health and Human Services (DHHS), will begin testing all inmates and facility staff for COVID-19. NDOC facility staff provide essential services and testing them is an important preventative step to ensure asymptomatic transmission is not occurring from staff to inmates. In addition, the ability to test all inmates is critical in identification of positive cases and allows for appropriate prevention measures to be implemented in order to interrupt further disease transmission. This widescale testing plan is a crucial step in protecting the health and safety of inmates, facility staff and communities at large.

Nevada Department of Corrections

In preparation for this widescale testing, NDOC will develop a testing prioritization plan by facility. This plan will include a timeline for specimen collection in each facility in a manner that continues to preserve our public health testing resources. NDOC medical staff will perform the specimen collection efforts and coordinate specimen delivery to NSPHL. The NSPHL can process approximately 500 specimens a day from NDOC while continuing to also meet the COVID-19 testing needs of Nevada communities. NDOC will coordinate with the NSPHL to obtain the necessary testing supplies to achieve this testing goal.

There are currently 11,985 inmates and 2,673 facility staff at NDOC. Considering the NSPHL can process 500 specimens a day from NDOC, it will take approximately 30 days to complete the testing efforts.
NDOC will ensure appropriate policies and procedures are in place to effectively respond to any positive cases identified in a manner consistent with CDC and Federal Bureau of Prisons (BOP) guidelines.

**Nevada State Public Health Laboratory**

The NSPHL will be performing molecular testing on all specimens received from NDOC. Molecular tests detect the presence of the RNA and is considered a diagnostic test. The NSPHL has the capacity to test approximately 500 specimens a day from NDOC. NSPHL is working in partnership with the Nevada Division of Emergency Management (DEM) to order the necessary collection and testing kits to support this effort.

**Nevada Department of Health and Human Services**

The Nevada DHHS will be monitoring the testing efforts to include the total number of tests performed by facility, and by staff and inmates. A summary of results and testing efforts will be provided weekly. DHHS will continue to be a resource to NDOC for case investigation, contact tracing and mitigation measures as needed.

**Reporting**

Health care providers should immediately notify both infection control personnel at their health care facility and their local/state health department in the event of a person under investigation (PUI) for COVID-19.

- Nevada Division of Public and Behavioral Health (DPBH): (775)-684-5911 (M-F 8:00 AM to 5:00 PM); (775) 400-0333 (after hours)
- Southern Nevada Health District (SNHD): (702)-759-1300 (24 hours)
- Washoe County Health District (WCHD): (775)-328-2447 (24 hours)
- Carson City Health and Human Services (CCHHS): (775)-887-2190 (M-F 8:00 AM to 5:00 PM); (775)-887-2190 (after hours)

For More Information: Please contact DPBH M-F 8:00 AM to 5:00 PM at (775)-684-5911. The afterhours line can be contacted at (775) 400-0333.
Criteria to Return to Work for Healthcare Personnel with Suspected or Confirmed COVID-19

Who this is for:
Occupational health programs and public health officials making decisions about return to work for healthcare personnel (HCP) with confirmed COVID-19, or who have suspected COVID-19 (e.g., developed symptoms of a respiratory infection [e.g., cough, sore throat, shortness of breath, fever] but did not get tested for COVID-19).

Decisions about return to work for HCP with confirmed or suspected COVID-19 should be made in the context of local circumstances. Options include a symptom-based (i.e., time-since-illness-onset and time-since-recovery strategy) or time-based strategy or a test-based strategy. Of note, there have been reports of prolonged detection of RNA without direct correlation to viral culture.

Return to Work Criteria for HCP with Suspected or Confirmed COVID-19

Symptomatic HCP with suspected or confirmed COVID-19 (Either strategy is acceptable depending on local circumstances):

- **Symptom-based strategy.** Exclude from work until:
  - At least 3 days (72 hours) have passed since recovery defined as resolution of fever without the use of fever-reducing medications and improvement in respiratory symptoms (e.g., cough, shortness of breath); and,
  - At least 10 days have passed since symptoms first appeared

- **Test-based strategy.** Exclude from work until:
  - Resolution of fever without the use of fever-reducing medications and
  - Improvement in respiratory symptoms (e.g., cough, shortness of breath), and
  - Negative results of an FDA Emergency Use Authorized COVID-19 molecular assay for detection of SARS-CoV-2 RNA from at least two consecutive respiratory specimens collected ≥24 hours apart (total of two negative specimens). Of note, there have been reports of prolonged detection of RNA without direct correlation to viral culture.

HCP with laboratory-confirmed COVID-19 who have not had any symptoms (Either strategy is acceptable depending on local circumstances):

- **Time-based strategy.** Exclude from work until:
  - 10 days have passed since the date of their first positive COVID-19 diagnostic test assuming they have not subsequently developed symptoms since their positive test. If they develop symptoms, then the symptom-based or test-based strategy should be used. Note, because symptoms cannot be used to gauge where these individuals are in the course of their illness, it is possible that the duration of viral shedding could be longer or shorter than 10 days after their first positive test.

- **Test-based strategy.** Exclude from work until:
  - Negative results of an FDA Emergency Use Authorized COVID-19 molecular assay for detection of SARS-CoV-2 RNA from at least two consecutive respiratory specimens collected ≥24 hours apart (total of two negative specimens). Note, because of the absence of symptoms, it is not possible to gauge where these individuals are in the course of their illness. There have been reports of prolonged detection of RNA without direct correlation to viral culture.

Note that detecting viral RNA via PCR does not necessarily mean that infectious virus is present.

Consider consulting with local infectious disease experts when making decisions about discontinuing Transmission-Based Precautions for individuals who might remain infectious longer than 10 days (e.g., severely immunocompromised).

If HCP had COVID-19 ruled out and have an alternate diagnosis (e.g., tested positive for influenza), criteria for return to work should be based on that diagnosis.
Return to Work Practices and Work Restrictions

After returning to work, HCP should:

- Always wear a facemask for source control while in the healthcare facility until all symptoms are completely resolved or at baseline. A facemask instead of a cloth face covering should be used by these HCP for source control during this time period while in the facility. After this time period, these HCP should revert to their facility policy regarding universal source control during the pandemic.
  - A facemask for source control does not replace the need to wear an N95 or higher-level respirator (or other recommended PPE) when indicated, including when caring for patients with suspected or confirmed COVID-19.
  - Of note, N95 or other respirators with an exhaust valve might not provide source control.
- Self-monitor for symptoms and seek re-evaluation from occupational health if respiratory symptoms recur or worsen.

For the most up to date CDC guidance see Criteria for Return to Work for Healthcare Personnel with Suspected or Confirmed COVID-19.
Telehealth

Telehealth services should be leveraged as much as possible during the COVID-19 response. Telehealth will expand the resources available for those at higher risk of adverse outcomes from infection, populations in rural communities, those not needing emergent care, and individuals that may be experiencing a mental health crisis. Administering medical advice, triage, pharmaceutical consultation, nursing consultation, and other health resources through technology will also reduce the risk of exposure to COVID-19 for both patients and providers. Barriers to performing services have been reduced through certain federal regulations not being enforced, and additional measures should be taken by state and local agencies to encourage this form of health services.

Many services can and should be performed through technology. This area may use workforce resources like retired healthcare providers, the State Emergency Registry of Volunteers (SERV-NV), students entering a healthcare profession as allowed by their institution and licensing boards, mental and behavioral health personnel, and many others.

State and local resources should consider lowering or eliminating the fees for services related to telehealth to expand the use by Nevadans. Nevada Medicaid currently allows for the reimbursement of telehealth services for Medicaid enrolled providers and is waiving certain policy limitations. Additional policy waivers should be considered if policies are identified as problematic for the quick expansion of services needed to respond to the public health emergency related to COVID-19.

Full DHCFP Resources: Nevada Division of Healthcare Financing and Policy – COVID-19 Resources

US HHS Relaxed HIPAA Requirements During COVID-19 Response

The Office for Civil Rights (OCR) at the United State Department of Health and Human Services (HHS) will not be enforcing certain regulations under HIPAA for telemedicine during the COVID-19 response. Covered healthcare providers subject to the HIPAA Rules may seek to communicate with patients, and provide telehealth services, through remote communication technologies. Some of these technologies, and the way they are used by HIPAA covered healthcare providers, may not fully comply with the requirements of the HIPAA Rules. OCR will exercise its enforcement discretion and will not impose penalties for noncompliance with the regulatory requirements under the HIPAA Rules against covered healthcare providers in connection with the good faith provision of telehealth during the COVID-19 nationwide public health emergency.

A covered healthcare provider that wants to use audio or video communication technology to provide telehealth to patients can use any non-public facing remote communication product that is available to communicate with patients. OCR is exercising its enforcement discretion to not impose penalties for noncompliance with the HIPAA Rules in connection with the good faith provision of telehealth. This exercise of discretion applies to telehealth provided for any reason, regardless of whether the telehealth service is related to the diagnosis and treatment of health conditions related to COVID-19.

A covered healthcare provider in the exercise of their professional judgement may request to examine a patient exhibiting COVID-19 symptoms, using a video chat application connecting the provider’s or patient’s phone or computer in order to assess a greater number of patients while limiting the risk of infection of other persons who would be exposed from an in-person consultation. Likewise, a covered healthcare provider may provide similar telehealth services in the exercise of their professional judgment to assess or treat any other medical condition, even if not related to COVID-19, such as a sprained ankle, dental consultation, psychological evaluation, or other conditions.

Covered healthcare providers may use popular applications that allow for video chats, including Apple FaceTime, Facebook Messenger video chat, Google Hangouts video, or Skype, to provide telehealth without risk that OCR might seek to impose a penalty for noncompliance with the HIPAA Rules. Providers are encouraged to notify patients that these third-party applications potentially introduce privacy risks, and providers should enable all available encryption and privacy modes when using such applications.
Facebook Live, Twitch, TikTok, and similar video communication applications are public facing, and **should not be used** in the provision of telehealth by covered healthcare providers.

Covered healthcare providers that seek additional privacy protections for telehealth while using video communication products should provide services through technology vendors that are HIPAA compliant and will enter into HIPAA business associate agreements (BAAs) in connection with the provision of their video communication products. The list below includes some vendors that represent that they provide HIPAA-compliant video communication products and that they will enter a HIPAA BAA.

- Skype for Business
- Updox
- VSee
- Zoom for Healthcare
- Doxy.me
- Google G Suite Hangouts Meet

**Further OCR Guidance:** [HIPAA Privacy and Novel Coronavirus](#)

**HHS Guidance on BAAs:** [Sample Business Associate Agreement Provisions](#)

**HealthIT.gov Resource:** [Telemedicine and Telehealth](#)
Clinical Guidance for Management of Patients with Confirmed COVID-19

This interim guidance is for clinicians caring for patients with confirmed infection with severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes coronavirus disease 2019 (COVID-19). CDC will update this interim guidance as more information becomes available.

Clinical Presentation

Incubation period

The incubation period for COVID-19 is thought to extend to 14 days, with a median time of 4-5 days from exposure to symptoms onset. One study reported that 97.5% of persons with COVID-19 who develop symptoms will do so within 11.5 days of SARS-CoV-2 infection.

Presentation

The signs and symptoms of COVID-19 present at illness onset vary, but over the course of the disease, most persons with COVID-19 will experience the following:

- Fever (83–99%)
- Cough (59–82%)
- Fatigue (44–70%)
- Anorexia (40–84%)
- Shortness of breath (31–40%)
- Sputum production (28–33%)
- Myalgia (11–35%)

Atypical presentations have been described, and older adults and persons with medical comorbidities may have delayed presentation of fever and respiratory symptoms. In one study of 1,099 hospitalized patients, fever was present in only 44% at hospital admission but later developed in 89% during hospitalization. Headache, confusion, rhinorrhea, sore throat, hemoptysis, vomiting, and diarrhea have been reported but are less common (<10%). Some persons with COVID-19 have experienced gastrointestinal symptoms such as diarrhea and nausea prior to developing fever and lower respiratory tract signs and symptoms. Anosmia or ageusia preceding the onset of respiratory symptoms has been anecdotally reported, but more information is needed to understand its role in identifying COVID-19.

Several studies have reported that the signs and symptoms of COVID-19 in children are similar to adults and are usually milder compared to adults. For more information on the clinical presentation and course among children, see Information for Pediatric Healthcare Providers.

Asymptomatic and Pre-Symptomatic Infection

Several studies have documented SARS-CoV-2 infection in patients who never develop symptoms (asymptomatic) and in patients not yet symptomatic (pre-symptomatic). Since asymptomatic persons are not routinely tested, the prevalence of asymptomatic infection and detection of pre-symptomatic infection is not well understood. One study found that as many as 13% of reverse transcription polymerase chain reaction (RT-PCR)-confirmed cases of SARS-CoV-2 infection in children were asymptomatic. Another study of skilled nursing facility residents infected with SARS-CoV-2 from a healthcare worker demonstrated that half were asymptomatic or pre-symptomatic at the time of contact tracing evaluation and testing. Patients may have abnormalities on chest imaging before the onset of symptoms. Some data suggest that pre-symptomatic infection tended to be detected in younger individuals and was less likely to be associated with viral pneumonia.

Asymptomatic and Pre-Symptomatic Transmission

Epidemiologic studies have documented SARS-CoV-2 transmission during the pre-symptomatic incubation period, and asymptomatic transmission has been suggested in other reports. Virologic studies have also detected SARS-CoV-2 with RT-PCR low cycle thresholds, indicating larger quantities of viral RNA, and cultured viable virus among persons with asymptomatic and pre-symptomatic SARS-CoV-2 infection. The exact degree of SARS-CoV-2 viral RNA shedding that
confers risk of transmission is not yet clear. Risk of transmission is thought to be greatest when patients are symptomatic since viral shedding is greatest at the time of symptom onset and declines over the course of several days to weeks. However, the proportion of SARS-CoV-2 transmission in the population due to asymptomatic or pre-symptomatic infection compared to symptomatic infection is unclear.

Clinical Course

Illness Severity
The largest cohort of >44,000 persons with COVID-19 from China showed that illness severity can range from mild to critical:

- Mild to moderate (mild symptoms up to mild pneumonia): 81%
- Severe (dyspnea, hypoxia, or >50% lung involvement on imaging): 14%
- Critical (respiratory failure, shock, or multiorgan system dysfunction): 5%

In this study, all deaths occurred among patients with critical illness and the overall case fatality rate was 2.3%. The case fatality rate among patients with critical disease was 49%. Among children in China, illness severity was lower with 94% having asymptomatic, mild or moderate disease, 5% having severe disease, and <1% having critical disease. Among U.S. COVID-19 cases with known disposition, the proportion of persons who were hospitalized was 19%. The proportion of persons with COVID-19 admitted to the intensive care unit (ICU) was 6%.

Clinical Progression
Among patients who developed severe disease, the medium time to dyspnea ranged from 5 to 8 days, the median time to acute respiratory distress syndrome (ARDS) ranged from 8 to 12 days, and the median time to ICU admission ranged from 10 to 12 days. Clinicians should be aware of the potential for some patients to rapidly deteriorate one week after illness onset. Among all hospitalized patients, a range of 26% to 32% of patients were admitted to the ICU. Among all patients, a range of 3% to 17% developed ARDS compared to a range of 20% to 42% for hospitalized patients and 67% to 85% for patients admitted to the ICU. Mortality among patients admitted to the ICU ranges from 39% to 72% depending on the study. The median length of hospitalization among survivors was 10 to 13 days.

Risk Factors for Severe Illness
Age is a strong risk factor for severe illness, complications, and death. Among more than 44,000 confirmed cases of COVID-19 in China, the case fatality rate was highest among older persons: ≥80 years: 14.8%, 70–79 years: 8.0%, 60–69 years: 3.6%, 50–59 years: 1.3%, 40–49 years: 0.4%, <40 years: 0.2%. Early U.S. epidemiologic data suggests that the case fatality was highest in persons aged ≥85 years (range 10%–27%), followed by 3%–11% for ages 65–84 years, 1%–3% for ages 55–64 years, and <1% for ages 0–54 years.

Patients in China with no reported underlying medical conditions had an overall case fatality of 0.9%, but case fatality was higher for patients with comorbidities: 10.5% for those with cardiovascular disease, 7.3% for diabetes, and approximately 6% each for chronic respiratory disease, hypertension, and cancer. Heart disease, hypertension, prior stroke, diabetes, chronic lung disease, and chronic kidney disease have all been associated with increased illness severity and adverse outcomes. Accounting for differences in age and prevalence of underlying condition, mortality associated with COVID-19 in the United States was similar to China.

Reinfection
There are no data concerning the possibility of re-infection with SARS-CoV-2 after recovery from COVID-19. Viral RNA shedding declines with resolution of symptoms and may continue for days to weeks. However, the detection of RNA during convalescence does not necessarily indicate the presence of viable infectious virus. Clinical recovery has been correlated with the detection of IgM and IgG antibodies which signal the development of immunity.

Viral Testing
Diagnosis of COVID-19 requires detection of SARS-CoV-2 RNA by reverse transcription polymerase chain reaction (RT-PCR). Detection of SARS-CoV-2 viral RNA is better in nasopharynx samples compared to throat samples. Lower
respiratory samples may have better yield than upper respiratory samples. SARS-CoV-2 RNA has also been detected in stool and blood. Detection of SARS-CoV-2 RNA in blood may be a marker of severe illness. Viral RNA shedding may persist over longer periods among older persons and those who had severe illness requiring hospitalization. (median range of viral shedding among hospitalized patients 12–20 days).

Infection with both SARS-CoV-2 and with other respiratory viruses has been reported, and detection of another respiratory pathogen does not rule out COVID-19.

For more information about testing and specimen collection, handling and storage, visit Evaluating and Testing Persons for Coronavirus Disease 2019 (COVID-19) and Frequently Asked Questions on COVID-19 Testing at Laboratories.

Laboratory and Radiographic Findings

Laboratory Findings

Lymphopenia is the most common lab finding in COVID-19 and is found in as many as 83% of hospitalized patients. Lymphopenia, neutrophilia, elevated serum alanine aminotransferase and aspartate aminotransferase levels, elevated lactate dehydrogenase, high C-Reactive Protein (CRP), and high ferritin levels may be associated with greater illness severity. Elevated D-dimer and lymphopenia have been associated with mortality. Procalcitonin is typically normal on admission but may increase among those admitted to the ICU. Patients with critical illness had high plasma levels of inflammatory makers, suggesting potential immune dysregulation.

Radiographic Findings

Chest radiographs of patients with COVID-19 typically demonstrate bilateral air-space consolidation, though patients may have unremarkable chest radiographs early in the disease. Chest computerized tomography (CT) images from patients with COVID-19 typically demonstrate bilateral, peripheral ground glass opacities. Because this chest CT imaging pattern is non-specific and overlaps with other infections, the diagnostic value of chest CT imaging for COVID-19 may be low and dependent upon radiographic interpretation. One study found that 56% of patients who presented within 2 days of diagnosis had a normal CT. Conversely, other studies have also identified chest CT abnormalities in patients prior to the detection of SARS-CoV-2 RNA. Given the variability in chest imaging findings, chest radiograph or CT alone is not recommended for the diagnosis of COVID-19. The American College of Radiology also does not recommend CT for screening or as a first-line test for diagnosis of COVID-19. (See American College of Radiology Recommendations).

Clinical Management and Treatment

The National Institutes of Health published guidelines on prophylaxis use, testing, and management of patients with COVID-19. For more information, please visit: National Institutes of Health: Coronavirus Disease 2019 (COVID-19) Treatment Guidelines. The recommendations were based on scientific evidence and expert opinion and will be updated as more data become available.

Mild to Moderate Disease

Patients with a mild clinical presentation (absence of viral pneumonia and hypoxia) may not initially require hospitalization, and many patients will be able to manage their illness at home. The decision to monitor a patient in the inpatient or outpatient setting should be made on a case-by-case basis. This decision will depend on the clinical presentation, requirement for supportive care, potential risk factors for severe disease, and the ability of the patient to self-isolate at home. Patients with risk factors for severe illness (see People Who Are at Higher Risk for Severe Illness) should be monitored closely given the possible risk of progression to severe illness in the second week after symptom onset.

For information regarding infection prevention and control recommendations, please see Interim Infection Prevention and Control Recommendations for Patients with Confirmed Coronavirus Disease 2019 (COVID-19) or Persons Under Investigation for COVID-19 in Healthcare Settings.
Severe Disease
Some patients with COVID-19 will have severe disease requiring hospitalization for management. Inpatient management revolves around the supportive management of the most common complications of severe COVID-19: pneumonia, hypoxemic respiratory failure/ARDS, sepsis and septic shock, cardiomyopathy and arrhythmia, acute kidney injury, and complications from prolonged hospitalization, including secondary bacterial infections, thromboembolism, gastrointestinal bleeding, and critical illness polyneuropathy/myopathy.

More information can be found at National Institutes of Health: Coronavirus Disease 2019 (COVID-19) Treatment Guidelines and Healthcare Professionals: Frequently Asked Questions and Answers. Additional resources and guidance documents on the treatment and management of COVID-19, including inpatient management of critically ill patients, are provided below.

Hypercoagulability and COVID-19
Some patients with COVID-19 may develop signs of a hypercoagulable state and be at increased risk for venous and arterial thrombosis of large and small vessels. Laboratory abnormalities commonly observed among hospitalized patients with COVID-19-associated coagulopathy include:

- Mild thrombocytopenia
- Increased D-dimer levels
- Increased fibrin degradation products
- Prolonged prothrombin time

Elevated D-dimer levels have been strongly associated with greater risk of death.

There are several reports of hospitalized patients with thrombotic complications, most frequently deep venous thrombosis and pulmonary embolism. Other reported manifestations include:

- Microvascular thrombosis of the toes
- Clotting of catheters
- Myocardial injury with ST-segment elevation
- Large vessel strokes

The pathogenesis for COVID-19-associated hypercoagulability remains unknown. However, hypoxia and systemic inflammation secondary to COVID-19 may lead to high levels of inflammatory cytokines and activation of the coagulation pathway.

There are limited data available to inform clinical management around prophylaxis or treatment of venous thromboembolism in COVID-19 patients.

Several national professional associations provide resources for up-to-date information concerning COVID-19-associated hypercoagulability, including management of anticoagulation. This is a rapidly evolving topic, with new information released often.


Pediatric Management
Illness among pediatric patients with COVID-19 is typically milder than among adults, with most children presenting with symptoms of upper respiratory infection. However, severe outcomes have been reported in children including COVID-19 associated deaths. Data suggest that infants (<12 months of age) may be at higher risk for severe illness from COVID-19 compared with older children. CDC and partners are also investigating reports of multisystem inflammatory syndrome in children (MIS-C) associated with COVID-19; CDC has released a related health advisory through its Health Alert Network (HAN).

Investigational Therapeutics
The National Institutes of Health have published interim guidelines for the medical management of COVID-19 which include information on therapeutic options for COVID-19 currently under investigation. No U.S. Food and Drug Administration (FDA)-approved drugs have demonstrated safety and efficacy in randomized controlled trials when used to treat patients with COVID-19; although FDA has granted an Emergency Use Authorization for the use of remdesivir to treat severe cases. Use of investigational therapies for treatment of COVID-19 should ideally be done in the context of enrollment in randomized controlled trials, so that beneficial drugs can be identified. For the latest information, see Information for Clinicians on Therapeutic Options for COVID-19 Patients. For information on registered trials in the United States, see ClinicalTrials.gov.

CDC Guidance: Interim Clinical Guidance for Management of Patients with Confirmed Coronavirus Disease (COVID-19)

Ten Clinical Tips on COVID-19 for Healthcare Providers Involved in Patient Care

Treatment and Prophylaxis
1. The National Institutes of Health has developed guidance on treatment, which will be regularly updated as new evidence on the safety and efficacy of drugs and therapeutics emerges from clinical trials and research publications.
2. There is currently no FDA-approved post-exposure prophylaxis for people who may have been exposed to COVID-19.

Symptoms and Diagnosis
3. Non-respiratory symptoms of COVID-19 – such as gastrointestinal (e.g., nausea, diarrhea) or neurologic symptoms (e.g., anosmia, ageusia, headache) – might appear before fever and lower respiratory tract symptoms (e.g., cough and shortness of breath).
4. Children with COVID-19 may have fever and cough at symptom onset as often as adult patients. Although most children with COVID-19 have not had severe illness, clinicians should maintain a high index of suspicion for SARS-CoV-2 infection in children, particularly infants and children with underlying conditions.
5. CT scans should not be used to screen for COVID-19 or as a first-line test to diagnose COVID-19. CT should be used sparingly, reserved for hospitalized, symptomatic patients with specific clinical indications for CT.

Co-Infections
6. Patients can be infected with more than one virus at the same time. Coinfections with other respiratory viruses in people with COVID-19 have been reported. Therefore, identifying infection with one respiratory virus does not exclude SARS-CoV-2 virus infection.
7. Several patients with COVID-19 have been reported presenting with concurrent community-acquired bacterial pneumonia. Decisions to administer antibiotics to COVID-19 patients should be based on the likelihood of bacterial infection (community-acquired or hospital-acquired), illness severity, and antimicrobial stewardship issues.

Severe Illness
8. Clinicians should be aware of the potential for some patients to rapidly deteriorate one week after illness onset.
9. The median time to acute respiratory distress syndrome (ARDS) ranges from 8 to 12 days.
10. Lymphopenia, neutrophilia, elevated serum alanine aminotransferase and aspartate aminotransferase levels, elevated lactate dehydrogenase, high CRP, and high ferritin levels may be associated with greater illness severity.

**CDC Guidance:** [Ten Clinical Tips on COVID-19 for Healthcare Providers Involved in Patient Care](#)

**People Who Are at Higher Risk for Severe Illness**

COVID-19 is a new disease and there is limited information regarding risk factors for severe disease. Based on currently available information and clinical expertise, older adults and people of any age who have serious underlying medical conditions might be at higher risk for severe illness from COVID-19.

Based on what we know now, those at high-risk for severe illness from COVID-19 are:

- **People 65 years and older**
- People who live in a nursing home or long-term care facility

People of all ages with underlying medical conditions, particularly if not well controlled, including:

- People with chronic lung disease or moderate to severe asthma
- People who have serious heart conditions
- People who are immunocompromised
  - Many conditions can cause a person to be immunocompromised, including cancer treatment, smoking, bone marrow or organ transplantation, immune deficiencies, poorly controlled HIV or AIDS, and prolonged use of corticosteroids and other immune weakening medications
- People with severe obesity (body mass index [BMI] of 40 or higher)
- People with diabetes
- People with chronic kidney disease undergoing dialysis
- People with liver disease

**Full CDC Guidance:** [People Who Are at Higher Risk for Severe Illness](#)
Information for Pediatric Healthcare Providers

**How to use:** Refer to this information when managing pediatric patients with confirmed or suspected COVID-19. For healthcare providers caring for neonates (≤28 days old), please refer to CDC [guidance for evaluating and managing neonates at risk for COVID-19](https://www.cdc.gov/coronavirus/2019-ncov/healthcare-professionals/evaluation-management.html).

Maintaining Childhood Immunizations and Well-Child Care During COVID-19 Pandemic

Stay-at-home and shelter-in-place orders have resulted in declines in outpatient pediatric visits and fewer vaccine doses being administered, leaving children at risk for vaccine-preventable diseases. As states develop plans for reopening, healthcare providers are encouraged to work with families to keep or bring children up to date with their vaccinations. Primary care practices in communities affected by COVID-19 should continue to use [strategies to separate well visits from sick visits](https://www.cdc.gov/coronavirus/2019-ncov/healthcare-professionals/evaluation-management.html). Examples could include:

- Scheduling sick visits and well-child visits during different times of the day
- Reducing crowding in waiting rooms, by asking patients to remain outside (e.g., stay in their vehicles, if applicable) until they are called into the facility for their appointment, or setting up triage booths to screen patients safely
- Collaborating with healthcare providers in the community to identify separate locations for providing well visits for children

Healthcare providers should identify children who have missed well-child visits and/or recommended vaccinations and contact them to schedule in person appointments, starting with newborns, infants up to 24 months, young children and extending through adolescence. State-based immunization information systems and electronic health records may be able to support this work.

All newborns should be seen by a pediatric healthcare provider shortly after hospital discharge (3 to 5 days of age). Ideally, **newborn visits should be done in person** during the COVID-19 pandemic in order to evaluate for dehydration and jaundice, ensure all components of newborn screening were completed and appropriate confirmatory testing and follow-up is arranged, and evaluate mothers for postpartum depression. Developmental surveillance and early childhood screenings, including developmental and autism screening, should continue along with referrals for early intervention services and further evaluation if concerns are identified.

**Burden of COVID-19 Among Children**

Pediatric cases of coronavirus disease 2019 (COVID-19), caused by severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), have been reported. However, there are relatively fewer cases of COVID-19 among children compared to cases among adult patients.

- In the United States, 2% of confirmed cases of COVID-19 were among persons aged <18 years.
- In China, 2.2% of confirmed cases of COVID-19 were among persons aged <19 years old.
- In Italy, 1.2% of COVID-19 cases were among children aged <18 years.
- In Spain, 0.8% of confirmed cases of COVID-19 were among persons aged < 18 years.

Among cases in children reported from China, most had exposure to household members with confirmed COVID-19.

**Clinical Presentation in Children**

**Symptoms in Pediatric Patients**

Illness among pediatric cases appear to be mild, with most cases presenting with symptoms of upper respiratory infection such as:

- Fever
- Cough
- Nasal congestion
- Rhinorrhea
- Sore throat
Outcomes in Pediatric Patients
Relatively few children with COVID-19 are hospitalized, and fewer children than adults experience fever, cough, or shortness of breath. Severe outcomes have been reported in children including COVID-19 associated deaths. Hospitalization was most common among pediatric patients aged <1 year and those with underlying conditions. Although most cases reported among children to date have not been severe, clinicians should maintain a high index of suspicion for SARS-CoV-2 infection in children and monitor for progression of illness, particularly among infants and children with underlying conditions.

Incubation Period
While data on the incubation period for COVID-19 in the pediatric population are limited, it is thought to extend to 14 days, similar to adult patients with COVID-19. In studies from China, the reported incubation period among pediatric patients ranged from 2 to 10 days.

Clinical Presentation
Pediatric patients with COVID-19 may experience the following signs or symptoms over the course of the disease:

- Fever
- Cough
- Nasal congestion or rhinorrhea
- Sore throat
- Shortness of breath
- Diarrhea
- Nausea or vomiting
- Fatigue
- Headache
- Myalgia
- Poor feeding or poor appetite

The predominant signs and symptoms of COVID-19 reported to date among all patients are similar to other viral respiratory infections, including fever, cough, and shortness of breath. Although these signs and symptoms may occur at any time during the overall disease course, children with COVID-19 may not initially present with fever and cough as often as adult patients. In a report of nine hospitalized infants in China with confirmed COVID-19, only half presented with fever. Gastrointestinal symptoms, including abdominal pain, diarrhea, nausea, and vomiting, were reported in a minority of adult patients. In one pediatric case of COVID-19, diarrhea was the only symptom reported.

There have been multiple reports to date of children with asymptomatic SARS-CoV-2 infection. In one study, up to 13% of pediatric cases with SARS-CoV-2 infection were asymptomatic. The prevalence of asymptomatic SARS-CoV-2 infection and duration of pre-symptomatic infection in children are not well understood, as asymptomatic individuals are not routinely tested.

Signs and symptoms of COVID-19 in children may be similar to those for common viral respiratory infections or other childhood illnesses. It is important for pediatric providers to have an appropriate suspicion of COVID-19, but also to continue to consider and test for other diagnoses, such as influenza (see CDC’s Flu Information for Healthcare Professionals for more information).

Clinical Course and Complications in Children
The largest study of pediatric patients (>2,000) with COVID-19 from China reported that illness severity ranged from asymptomatic to critical:

- Asymptomatic (no clinical signs or symptoms with normal chest imaging): 4%
- Mild (mild symptoms, including fever, fatigue, myalgia, cough): 51%
- Moderate (pneumonia with symptoms or subclinical disease with abnormal chest imaging): 39%
• Severe (dyspnea, central cyanosis, hypoxia): 5%
• Critical (acute respiratory distress syndrome [ARDS], respiratory failure, shock, or multi-organ dysfunction): 0.6%

Based on these early studies, children of all ages are at risk for COVID-19; however, complications of COVID-19 appear to be less common among children compared with adults based on limited reports from China and the U.S. In children, SARS-CoV-2 may have more affinity for the upper respiratory tract (including nasopharyngeal carriage) than the lower respiratory tract.

As of April 2, 2020, infants aged <1 year accounted for 15% of pediatric COVID-19 cases in the U.S. However, this age group remains underrepresented among COVID-19 cases in patients of all ages (0.3%) compared to their percentage in the U.S. population (1.2%). Relative to adult patients with COVID-19, there were fewer children with COVID-19 requiring hospitalization (6–20%) and ICU admission (0.6–2%). Although severe complications (e.g., acute respiratory distress syndrome, septic shock) have been reported in children of all ages, they appear to be infrequent. Based on limited data on children with either suspected or confirmed infection with SARS-CoV-2, infants (<12 months of age) may be at higher risk of severe or critical disease compared with older children, with hospitalization being most common among children aged <1 year and those with underlying conditions, such as chronic lung disease (including asthma), cardiovascular disease, and immunosuppression. Other reports describe a mild disease course, including in infants.

In the United States, as of April 2, 2020, there have been three deaths among children with laboratory-confirmed SARS-CoV-2 infection that have been reported to CDC, but the contribution of SARS-CoV-2 infection to the cause of death in these cases is unclear.

Multisystem Inflammatory Syndrome in Children (MIS-C)
Multisystem inflammatory syndrome in children (MIS-C) is a condition where different body parts can become inflamed, including the heart, lungs, kidneys, brain, skin, eyes, or gastrointestinal organs. Children with MIS-C may have a fever and various symptoms, including abdominal (gut) pain, vomiting, diarrhea, neck pain, rash, bloodshot eyes, or feeling extra tired. We do not yet know what causes MIS-C. However, many children with MIS-C had the virus that causes COVID-19 or had been around someone with COVID-19.

CDC is collaborating with domestic and international partners to investigate reports of multisystem inflammatory syndrome in children (MIS-C) associated with COVID-19. CDC and partners are working to better understand this new syndrome, including how common it is and its risk factors, and to begin tracking cases.

Patients with MIS-C have presented with a persistent fever and a variety of signs and symptoms including multiorgan (e.g., cardiac, gastrointestinal, renal, hematologic, dermatologic, neurologic) involvement, and elevated inflammatory markers. Not all children will have the same symptoms, and some children may have symptoms not listed here. MIS-C may begin weeks after a child is infected with SARS-CoV-2. The child may have been asymptomatically infected, and, in some cases, the child and their caregivers may not even know they had been infected.

For children who may have MIS-C, evaluation for signs of this syndrome may include (but are not limited to) chest radiograph, echocardiography, and blood testing to evaluate for evidence of inflammation. Healthcare providers who have cared or are caring for patients younger than 21 years of age meeting MIS-C criteria should report suspected cases to their local, state, or territorial health department. After hour phone numbers for health departments are available at the Council of State and Territorial Epidemiologists website. For additional reporting questions, please contact CDC’s 24-hour Emergency Operations Center at 770-488-7100. For more information including a full case definition, please visit the CDC Health Alert Network.

Case Definition for MIS-C
As described in the Health Advisory, “Multisystem Inflammatory Syndrome in Children (MIS-C) Associated with Coronavirus Disease 2019 (COVID-19),” the case definition for MIS-C is:
• An individual aged <21 years presenting with fever*, laboratory evidence of inflammation**, and evidence of clinically severe illness requiring hospitalization, with multisystem (>2) organ involvement (cardiac, renal, respiratory, hematologic, gastrointestinal, dermatologic or neurological); AND
• No alternative plausible diagnoses; AND
• Positive for current or recent SARS-CoV-2 infection by RT-PCR, serology, or antigen test; or exposure to a suspected or confirmed COVID-19 case within the 4 weeks prior to the onset of symptoms.

*Fever >38.0°C for ≥24 hours, or report of subjective fever lasting ≥24 hours

**Including, but not limited to, one or more of the following: an elevated C-reactive protein (CRP), erythrocyte sedimentation rate (ESR), fibrinogen, procalcitonin, d-dimer, ferritin, lactic acid dehydrogenase (LDH), or interleukin 6 (IL-6), elevated neutrophils, reduced lymphocytes and low albumin

Additional comments:
• Some individuals may fulfill full or partial criteria for Kawasaki disease but should be reported if they meet the case definition for MIS-C.
• Consider MIS-C in any pediatric death with evidence of SARS-CoV-2 infection.

Clinical Presentation
Patients with MIS-C have presented with a persistent fever, fatigue, and a variety of signs and symptoms including multiorgan (e.g., cardiac, gastrointestinal, renal, hematologic, dermatologic, neurologic) involvement, and elevated inflammatory markers. Not all children will have the same signs and symptoms, and some children may have symptoms not listed here. MIS-C may begin weeks after a child is infected with SARS-CoV-2. The child may have been infected from an asymptomatic contact and, in some cases, the child and their caregivers may not even know they had been infected.

Testing, Laboratory Findings, and Radiographic Findings
Diagnosis of COVID-19 requires detection of SARS-CoV-2 RNA by reverse transcription polymerase chain reaction (RT-PCR) testing. Testing strategies, including clinical criteria for considering testing and recommended specimen type, are the same for children and adults. CDC’s guidance for evaluation and management of neonates at risk for COVID-19 details specific testing considerations for newborns. For more information about testing, visit Evaluating and Testing Persons for Coronavirus Disease 2019 (COVID-19), Interim Guidelines for Collecting, Handling, and Testing Clinical Specimens from Persons for COVID-19, and Frequently Asked Questions on COVID-19 Testing at Laboratories.

There are limited data on laboratory findings associated with COVID-19 in pediatric patients. Unlike adult patients with COVID-19, there have been no consistent leukocyte abnormalities reported in pediatric patients. Additional studies are required to understand the laboratory findings associated with pediatric cases of COVID-19.

Chest x-rays of children with COVID-19 have shown patchy infiltrates consistent with viral pneumonia, and chest CT scans have shown nodular ground glass opacities; however, these findings are not specific to COVID-19, may overlap with other diagnoses, and some children may have no radiographic abnormalities. Chest radiograph or CT alone is not recommended for the diagnosis of COVID-19. The American College of Radiology also does not recommend CT for screening or as a first-line test for diagnosis of COVID-19. (See American College of Radiology Recommendations)

Treatment and Prevention
Currently, there are no specific drugs approved by the U.S. Food and Drug Administration (FDA) for treatment or prevention of COVID-19. Treatment remains largely supportive and includes prevention and management of complications. Healthcare facilities, including pediatric healthcare facilities, should ensure that infection prevention and control policies, including universal source control, are in place to minimize chance of exposure to SARS-CoV-2 among providers, patients, and families. CDC has published specific guidance, including infection prevention and control considerations, for inpatient obstetric healthcare settings and the evaluation and management of neonates at risk for COVID-19.
The decision to manage a pediatric patient with mild to moderate COVID-19 in the outpatient or inpatient setting should be decided on a case-by-case basis. Pediatric healthcare providers should consider the patient’s clinical presentation, requirement for supportive care, underlying conditions, and the ability for parents or guardians to care for the child at home. For more information on home care of patients not requiring hospitalization visit: Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for Coronavirus Disease 2019 (COVID-19). There have been limited data on which underlying conditions in children might increase their risk of infection or disease severity. People of all ages, including children and adolescents, with certain underlying medical conditions such as chronic lung disease or moderate to severe asthma, serious heart conditions (e.g., congenital heart defects), immunocompromised conditions (e.g., cancer undergoing treatment), severe obesity (body mass index [BMI]≥40), diabetes, chronic kidney disease on dialysis or liver disease might be at higher risk for severe illness from COVID-19 and should be monitored for symptoms or signs of concern by their caregivers at home and by their clinical providers.

Severe complications associated with COVID-19 in pediatric patients have not been well-described. One newly described severe complication, multisystem inflammatory syndrome (MIS-C), is being investigated by CDC and partners. The treatment of severe and critical cases of pediatric patients with COVID-19 in the hospital may include management of pneumonia, respiratory failure, exacerbation of underlying conditions, sepsis or septic shock, or secondary bacterial infection. Situations in which a patient requires prolonged hospitalization may also result in secondary nosocomial infections.

Several organizations have published guidelines related to the treatment and management of COVID-19 patients, including pediatric patients:

- The National Institutes of Health (NIH) has published Coronavirus Disease 2019 (COVID-19) Treatment Guidelines that address prophylaxis use, testing, and management of COVID-19 patients and include special considerations for children. The recommendations in the guidelines were based on scientific evidence and expert opinion and will be updated as more data becomes available.
- The World Health Organization (WHO) has published Interim Guidance on Clinical Management of Severe Acute Respiratory Infection when Novel Coronavirus (nCoV) Infection is Suspected.
- The Surviving Sepsis Campaign has published International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children.

For information regarding discontinuing transmission-based precautions and disposition of patients with COVID-19 in healthcare settings, please see: Discontinuation of Transmission-Based Precautions and Disposition of Patients with COVID-19 in Healthcare Settings (Interim Guidance).

**CDC Guidance:** Information for Pediatric Healthcare Providers
Evaluation and Management Considerations for Neonates at Risk for COVID-19

This guidance is intended to inform healthcare providers about the diagnosis, evaluation, infection prevention and control practices, and disposition of neonates (≤28 days old) with confirmed or suspected COVID-19 or known COVID-19 exposure, including birth to a mother with confirmed or suspected COVID-19.

Routes of transmission

Transmission of SARS-CoV-2, the virus that causes COVID-19, to neonates is thought to occur primarily through respiratory droplets during the postnatal period when neonates are exposed to mothers, other caregivers, visitors, or healthcare personnel with COVID-19. Limited reports have raised concern of possible intrapartum or peripartum transmission, but the extent and clinical significance of vertical transmission by these routes is unclear.

Clinical presentation and disease severity

Data suggest that infants (<12 months of age) may be at higher risk for severe illness from COVID-19 compared with older children; however, information on clinical presentation and disease severity among neonates is limited and based on case reports and small case series.

Reported signs among neonates with SARS-CoV-2 infection include fever, lethargy, rhinorrhea, cough, tachypnea, increased work of breathing, vomiting, diarrhea, and feeding intolerance or decreased intake. The extent to which SARS-CoV-2 infection contributed to the reported signs of infection and complications is unclear, as many of these findings can also be seen commonly in term and preterm infants for other reasons (e.g., transient tachypnea of the newborn or neonatal respiratory distress syndrome). The majority of term infants (≥37 weeks gestational age) in these case reports had asymptomatic or mild disease and recovered without complication. However, severe disease requiring mechanical ventilation has been reported in COVID-19 positive neonates.

Testing recommendations

**Testing** is recommended for all neonates born to women with confirmed or suspected COVID-19, regardless of whether there are signs of infection in the neonate. For neonates presenting with signs of infection suggestive of COVID-19 as described above, providers should also consider an alternative diagnosis to COVID-19.

**Recommended testing**

- Diagnosis should be confirmed by testing for SARS-CoV-2 RNA by reverse transcription polymerase chain reaction (RT-PCR). Detection of SARS-CoV-2 viral RNA can be collected using nasopharynx, oropharynx or nasal swab samples.
- Serologic testing is not recommended at this time to diagnose acute infection in neonates.

**When to test**

- Both symptomatic and asymptomatic neonates born to mothers with confirmed or suspected COVID-19, regardless of mother’s symptoms, should have testing performed at approximately 24 hours of age. If initial test results are negative, or not available, testing should be repeated at 48 hours of age.
- For asymptomatic neonates expected to be discharged <48 hours of age, a single test can be performed prior to discharge, between 24-48 hours of age.

**Prioritization of testing**

- In areas with limited testing capacity, testing should be prioritized for neonates with signs suggestive of COVID-19 as well infants with COVID-19 exposure requiring higher levels of care or who are expected to have prolonged hospitalizations (>48-72 hours depending on type of delivery).

**Limitations and interpretation of testing**

- The optimal timing of testing after birth is unknown. Early testing may lead to false positives (e.g., if the neonate’s nares, nasopharynxy and/or oropharynx is contaminated by SARS-CoV-2 RNA in maternal fluids) or false negatives (e.g., RNA may not yet be detectable immediately after exposure following delivery).
**Infection prevention and control**

Given the paucity of information regarding signs of COVID-19 in neonates, all neonates born to mothers with confirmed or suspected COVID-19 should be considered as having suspected SARS-CoV-2 infection when testing results are not available.

Infants with suspected SARS-CoV-2 infection should be isolated from other healthy neonates and cared for according to the [Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings](https://www.cdc.gov/coronavirus/2019-ncov/hcp/interim-infection-prevention-control.html).

For healthcare personnel, recommendations for appropriate PPE are outlined in the [Interim Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings](https://www.cdc.gov/coronavirus/2019-ncov/hcp/interim-infection-prevention-control.html).

**Mother/neonatal contact**

Although it is well recognized that the ideal setting for care of a healthy term newborn while in the hospital is within the mother’s room, temporary separation of the newborn from a mother with confirmed or suspected COVID-19 should be strongly considered to reduce the risk of transmission to the neonate. Efforts are under way to address the knowledge gap of transmission between mother and neonate during pregnancy, delivery and in the postpartum period, and recommendations will be updated as new information informing the risk-benefit of maternal-infant separation is available.

Temporary separation in the clinical setting can be achieved in many ways, including a separate room, maintaining a physical distance of ≥6 feet between the mother and neonate, and placing the neonate in a temperature-controlled isolette if the neonate remains in the mother’s room. For mothers whose test results are negative, separation precautions may be discontinued.

Although temporary separation of a neonate from a mother with confirmed or suspected COVID-19 should be strongly considered in healthcare settings, it may not always be feasible. For these situations, the risks and benefits of temporary separation of the mother from her baby should be discussed with the mother by the healthcare team, and decisions about temporary separation should be made in accordance with the mother’s wishes. Considerations include:

- Clinical conditions of the mother and neonate
  - Separation may be necessary for infants at higher risk for severe illness (e.g., preterm infants and infants with medical conditions)
- Availability of testing, staffing, space, and PPE in the healthcare facility
- Results of neonatal testing
  - If the neonate tests positive for SARS-CoV-2, separation is not necessary

If separation is not undertaken, measures that can be taken to minimize the risk of transmission from mother to neonate include:

- Mother uses cloth face covering and practices hand hygiene during all contact with the neonate. Cloth face coverings should not be placed on neonates or any children younger than 2 years of age.
- Engineering controls like physical barriers are used (e.g., placing the neonate in a temperature-controlled isolette), and the neonate is kept ≥6 feet away from the mother as much as possible.

**Disposition**

Neonates who otherwise meet clinical criteria for discharge do not require the results of SARS-CoV-2 testing for discharge. Results should be communicated to the family and outpatient healthcare provider. Parents and other caregivers should follow recommendations for neonates with suspected or confirmed COVID-19 described in the [Discontinuation of Isolation for Persons with COVID-19 Not in Healthcare Settings](https://www.cdc.gov/coronavirus/2019-ncov/hcp/discontinuation.html). Neonates with suspect or confirmed COVID-19, or ongoing exposure, require close outpatient follow-up after discharge.
For information related to disposition of patients who have recently given birth, see Considerations for Inpatient Obstetric Healthcare Settings.

Breastfeeding guidance is available at: Interim Guidance on Breastfeeding and Breast Milk Feeds in the Context of COVID-19. Additional information for parents and other caregivers about the importance of well childcare and information regarding feeding can be found on CDC’s Pregnancy, Breastfeeding, and Caring for Young Children website. Resources are also available on stress and coping secondary to COVID-19.

**CDC Guidance:** Evaluation and Management Considerations for Neonates At Risk for COVID-19
Considerations for Inpatient Obstetric Healthcare Settings

These infection prevention and control considerations are for healthcare facilities providing obstetric care for pregnant patients with suspected\(^1\) or confirmed coronavirus disease (COVID-19) in inpatient obstetric healthcare settings including obstetrical triage, labor and delivery, recovery and inpatient postpartum settings.

This information is intended to aid hospitals and clinicians in applying broader [CDC interim guidance on infection prevention and control for COVID-19](https://www.cdc.gov/coronavirus/2019-ncov/hcp/index.html).

Since maternity and newborn care units vary in physical configuration, each facility should consider their appropriate space and staffing needs to prevent transmission of the virus that causes COVID-19. These considerations include appropriate isolation of pregnant patients who have suspected\(^1\) or confirmed COVID-19; basic and refresher training for all healthcare personnel on those units to include correct adherence to infection control practices and personal protective equipment (PPE) use and handling; and sufficient and appropriate PPE supplies positioned at all points of care.

These considerations are based upon the limited evidence available to date about transmission of the virus that causes COVID-19. The approaches outlined below are intentionally cautious until additional data become available to refine recommendations for prevention of person-to-person transmission in inpatient obstetric care settings.

Prehospital Considerations

- Pregnant patients with suspected\(^1\) or confirmed COVID-19 should notify the obstetric unit prior to arrival so the facility can make appropriate infection control preparations such as: identifying the most appropriate room for labor and delivery, ensuring infection prevention and control supplies and PPE are correctly positioned, and informing all healthcare personnel who will be involved in the patient’s care of infection control expectations before the patient’s arrival.

- If a pregnant patient who has suspected\(^1\) or confirmed COVID-19 is arriving via transport by emergency medical services, the driver should contact the receiving emergency department or healthcare facility and follow previously agreed-upon local or regional transport protocols. For more information refer to the [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/medical-services.html).

- Healthcare providers should promptly notify infection control personnel at their facility of the anticipated arrival of a pregnant patient who has suspected\(^1\) or confirmed COVID-19.

During Hospitalization

- Pregnant women admitted with suspected\(^1\) COVID-19 or who develop symptoms consistent with COVID-19 during admission should be prioritized for testing. Testing of asymptomatic pregnant women is at the discretion of the healthcare provider and facility. Healthcare facilities should ensure recommended infection control practices for hospitalized pregnant patients who have suspected or confirmed COVID-19 are consistent with [Interim Infection Prevention and Control Recommendations](https://www.cdc.gov/coronavirus/2019-ncov/hcp/infection-control-guidance.html).

- All healthcare facilities that provide obstetric care must ensure that their personnel are correctly trained and capable of implementing recommended infection control interventions, including the use of personal protective equipment. Individual healthcare personnel should ensure they understand and can adhere to infection control requirements.

- Healthcare facilities providing inpatient obstetrical care should limit visitors to pregnant women who have known or suspected COVID-19 infections.
  - Visitors should be limited to those essential for the pregnant woman’s well-being and care (emotional support persons).
- Depending upon the extent of community-transmission, institutions may consider limiting visitors to one essential support person and having that person be the same individual throughout the hospitalization.

- Use of alternative mechanisms for patient and visitor interactions, such as video-call applications, can be encouraged for any additional support persons.
  
  o Any visitors permitted to labor and delivery should be screened for symptoms of COVID-19 and should not be allowed entry if fever or other symptoms are present.
  
  o Visitors should be informed about use of masks (including cloth face coverings) for any person entering the healthcare facility and about appropriate use of personal protective equipment according to current facility visitor policy. Visitors should be instructed to only visit the patient room and should not go to other locations within the facility, including any newborn nursery.

Considerations for Newborns and Breastfeeding

CDC has developed recommendations for healthcare providers caring for neonates (newborns) at risk for COVID-19, including testing and infection prevention and control considerations, as well as guidance for care of breastfeeding mothers. For more information, visit Evaluation and Management Considerations for Neonates At Risk for COVID-19 and Guidance on Care for Breastfeeding Women.

Disposition

Patients with COVID-19 can be discharged from the healthcare facility whenever clinically indicated. For more information, see Discontinuation of Transmission-Based Precautions and Disposition of Patients with COVID-19 in Healthcare Settings. Meeting criteria for discontinuation of Transmission-Based Precautions is not a prerequisite for discharge.

Patients who are able to be discharged from the hospital but have not met criteria to discontinue isolation and wish to reduce the risk of transmission to their newborn may continue temporary separation at their place of residence (if feasible) until cleared to discontinue home isolation following either the symptom-based strategy or testing based strategy. When temporary separation is being considered, its risks and benefits should be discussed by the mother and the healthcare team. Decisions about temporary separation should be made in accordance with the mother’s wishes. For more information, refer to guidance in the Discontinuation of Home Isolation for Persons with COVID-19.

People who are caring for infants and young children may experience increased stress, feelings of isolation, or loneliness because of social distancing measures during the COVID-19 outbreak or related temporary separation. Postpartum depression symptoms may be worsened because of COVID-19 social distancing measures. Providers are encourage to share resources with patients about coping with stress during the COVID-19 pandemic.

Footnote:

1 For the purpose of obstetric care, a suspected COVID-19 case is someone who has symptoms of COVID-19, or has had a recent high risk contact (such as a family member at home with COVID-19) and does not have a negative test result (either because no test was done or because the test is still pending). Some facilities may choose to test all patients regardless of symptoms or known exposure as part of a universal testing protocol. Regardless of pending test results, pregnant individuals who are asymptomatic at the time of admission and have no history of high-risk contact should not be considered to be suspected cases.
Care for Breastfeeding Women

Key Points

- Breast milk is the best source of nutrition for most infants. We do not know whether mothers with COVID-19 can transmit the virus via breast milk, but the limited data available suggest this is not likely to be a source of transmission.

- Whether and how to start or continue breastfeeding should be determined by the mother in coordination with her family and healthcare providers.

- A mother with confirmed COVID-19 should be counseled to take all possible precautions to avoid spreading the virus to her infant, including hand hygiene and wearing a cloth face covering.

This interim guidance is intended for healthcare providers who care for breastfeeding women and infants who receive breast milk feeds in the context of coronavirus disease 2019 (COVID-19). This interim guidance is based on what is currently known about SARS-CoV-2, the virus that causes COVID-19, and the transmission of other viral respiratory pathogens. CDC will update this interim guidance as additional information becomes available. For breastfeeding guidance in the immediate postpartum setting, refer to Considerations for Inpatient Obstetric Healthcare Settings.

Transmission of SARS-CoV-2 through breast milk

These considerations are based upon the limited evidence available to date about transmission of severe acute respiratory syndrome coronavirus 2 (SARS-CoV-2), the virus that causes COVID-19, and knowledge of other viruses that cause severe respiratory illness including influenza and severe acute respiratory syndrome coronavirus (SARS-CoV).

Breast milk is the best source of nutrition for most infants, and it provides protection against many illnesses. There are rare exceptions when breastfeeding or feeding expressed breast milk is not recommended. We do not know whether mothers with COVID-19 can transmit the virus via breast milk, but the limited data available suggest this is not likely to be a source of transmission.

Pasteurized donor human milk is important in the care of preterm infants. No information is currently available regarding the effect of pasteurization on SARS-CoV-2 but similar viruses are inactivated with this process. Disruptions in human milk donations may be seen during the COVID-19 pandemic. If hospitals have difficulty acquiring donor human milk, available supplies should be prioritized for preterm infants who will benefit most from human milk feeds.

Guidance on breastfeeding for mothers in the context of COVID-19

Whether and how to start or continue breastfeeding should be determined by the mother, in coordination with her family and healthcare providers.

A mother with suspected, probable, or confirmed COVID-19 should be counseled to take all possible precautions to avoid spreading the virus to her infant. She should be instructed to wash her hands using soap and water, especially if her hands are visibly soiled, before touching the infant. If soap and water are not available, she should use a hand sanitizer with at least 60% alcohol. Additionally, mothers should wear a cloth face covering while feeding at the breast. If expressing breast milk either by hand expression or with a breast pump, the mother should clean her hands, as instructed above, before touching any pump or bottle parts and wear a cloth face covering. Mothers should be educated about recommendations on how to properly clean and sanitize breast pumps. If possible, expressed breast milk should be fed to the infant by a healthy caregiver, who is not at high-risk for severe illness from COVID-19.

Breastfeeding mothers who work in settings with higher risk of potential exposure to SARS-CoV-2, such as healthcare personnel and first responders, may have additional concerns related to expression of breast milk while at work. These mothers should follow the same recommendations outlined above given they may be at higher risk of infection with SARS-CoV-2. Ideally, employers would provide breastfeeding employees with a private, non-bathroom space for milk expression. Additional information for healthcare personnel, including those who are pregnant, have underlying medical conditions, or who are living with someone who is at risk for severe illness from COVID-19, is available.
There is evidence that SARS-CoV-2 remains on surfaces for several hours to days. Healthcare providers should discuss a mother’s individual circumstances (e.g., level of exposure to persons with suspected or confirmed COVID-19, availability and proper use of personal protective equipment) when counseling the mother about additional precautions prior to breastfeeding or expression of breast milk while at work. Currently, there is a lack of evidence to support precautions such as cleansing the breast prior to breastfeeding or milk expression or disinfecting external surfaces of milk collection devices (e.g., bottles, milk bags), as steps to reduce potential transmission of SARS-CoV-2. Mothers may consider additional steps such as these to minimize theoretic potential routes of exposure. Additional information on disinfecting facilities, such as workplace lactation rooms, is available.

Breastfed infants of women with confirmed COVID-19
An infant being breastfed by a mother who is confirmed to have COVID-19 should be considered as having suspected COVID-19 for the purposes of infection control and prevention for the duration of the mother’s recommended period of home isolation and 14 days thereafter. The same approach should be taken with respect to an infant who has any other ongoing, close contact with another person who has confirmed COVID-19. Mothers should be counseled to inform their child’s healthcare provider that their child has had high-risk contact with a person confirmed to have COVID-19.

Well child checks and lactation services
Healthcare providers are encouraged to prioritize newborn care and vaccination of infants and young children (through 24 months of age) when possible. Given the potential challenges related to breastfeeding in the context of COVID-19, the need for weight checks and visual or laboratory assessment for jaundice, and the stressors of social distancing, every effort should be made to conduct newborn follow-up visits in person. Healthcare providers should consider how to minimize exposure to the SARS-CoV-2 virus for patients, caregivers, and staff in the context of their local COVID-19 epidemiology and practice environment. Additional information on infection prevention and control in the healthcare setting is available.

Alternative approaches, such as telemedicine, may be considered when providing lactation support services to breastfeeding dyads. Lactation service providers who must see a mother or infant with suspected or confirmed COVID-19 should follow recommended infection prevention and control measures, including the use of recommended personal protective equipment (PPE). If no PPE is available, then lactation service providers should carefully consider if alternative approaches will reduce the risk of exposure for the lactation service provider and are safe for care of the breastfeeding dyad.
Strategies for Optimizing the Supply of N95 Respirators
When N95 Supplies are Running Low

Use of respirators beyond the manufacturer-designated shelf life for healthcare delivery

Consideration can be made to use N95 respirators beyond the manufacturer-designated shelf life for care of patients with COVID-19, tuberculosis, measles, and varicella. However, respirators beyond the manufacturer-designated shelf life may not perform to the requirements for which they were certified. Over time, components such as the straps and nose bridge material may degrade, which can affect the quality of the fit and seal. Many models found in U.S. stockpiles and stockpiles of healthcare facilities have been found to continue to perform in accordance with NIOSH performance standards. However, fluid resistance and flammability were not assessed. Use of the N95 respirators recommended in Release of Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life: Considerations for the COVID-19 Response can be considered. It is optimal to use these respirators in the context of a respiratory protection program that includes medical evaluation, training, and fit testing. If used in healthcare delivery, it is particularly important that HCP perform the expected seal check, prior to entering a patient care area. CDC does not recommend using N95s beyond the manufacturer-designated shelf life in surgical settings. Release of Stockpiled N95 Filtering Facepiece Respirators Beyond the Manufacturer-Designated Shelf Life: Considerations for the COVID-19 Response.

Use of respirators approved under standards used in other countries that are similar to NIOSH-approved N95 respirators

Other countries approve respirators for occupational use and approve respirators to these standards. These products are evaluated using some methods similar to those used by NIOSH, and some methods that are different, but are expected to protect HCPs. These respirators are expected to provide protection to workers. Those with equivalent or similar protection to NIOSH-approved respirators may be available to provide respiratory protection to workers exposed to harmful airborne particulate matter. These devices are expected to be suitable alternatives to provide protection during the COVID-19 response when supplies are short. The country, conformity assessment standards, acceptable product classifications, standards and guidance documents, and protection factor determination are provided in alphabetical order. All of these respirators have protection factors of at least 10 in the countries listed below, as outlined in the standards and guidance documents specified.

<table>
<thead>
<tr>
<th>Country</th>
<th>Performance Standard</th>
<th>Acceptable product classifications</th>
<th>Standards/Guidance Documents</th>
<th>Protection Factor ≥ 10</th>
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<tr>
<td>Brazil</td>
<td>ABNT/NBR 13698:2011</td>
<td>PFF3, PFF2</td>
<td>Fundacentro CDU 614.894</td>
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</tr>
<tr>
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<td>EN 149-2001</td>
<td>FFP3, FFP2</td>
<td>EN 529:2005</td>
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<td>Mexico</td>
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<td>N100, P100, R100 N99, P99, R99</td>
<td>NOM-116</td>
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</tr>
<tr>
<td>US NIOSH</td>
<td>NIOSH approved 42 CFR 84</td>
<td>N100, P100, R100 N99, P99, R99 N95, P95, R95</td>
<td>OSHA 29CFR1910.134</td>
<td>YES</td>
</tr>
</tbody>
</table>
Respirator Extended Use Recommendations

Extended use is favored over reuse because it is expected to involve less touching of the respirator and therefore less risk of contact transmission. Please see the section on Risks of Extended Use and Reuse of Respirators for more information about contact transmission and other risks involved in these practices.

A key consideration for safe extended use is that the respirator must maintain its fit and function. Workers in other industries routinely use N95 respirators for several hours uninterrupted. Experience in these settings indicates that respirators can function within their design specifications for 8 hours of continuous or intermittent use. Some research studies have recruited healthcare workers as test subjects and many of those subjects have successfully worn an N95 respirator at work for several hours before they needed to remove them. Thus, the maximum length of continuous use in non-dusty healthcare workplaces is typically dictated by hygienic concerns (e.g., the respirator was discarded because it became contaminated) or practical considerations (e.g., need to use the restroom, meal breaks, etc.), rather than a pre-determined number of hours.

If extended use of N95 respirators is permitted, respiratory protection program administrators should ensure adherence to administrative and engineering controls to limit potential N95 respirator surface contamination (e.g., use of barriers to prevent droplet spray contamination) and consider additional training and reminders (e.g., posters) for staff to reinforce the need to minimize unnecessary contact with the respirator surface, strict adherence to hand hygiene practices, and proper Personal Protective Equipment (PPE) donning and doffing technique. Healthcare facilities should develop clearly written procedures to advise staff to take the following steps to reduce contact transmission after donning:

- Discard N95 respirators following use during aerosol generating procedures.
- Discard N95 respirators contaminated with blood, respiratory or nasal secretions, or other bodily fluids from patients.
- Discard N95 respirators following close contact with, or exit from, the care area of any patient co-infected with an infectious disease requiring contact precautions.
- Consider use of a cleanable face shield (preferred) over an N95 respirator and/or other steps (e.g., masking patients, use of engineering controls) to reduce surface contamination.
- Perform hand hygiene with soap and water or an alcohol-based hand sanitizer before and after touching or adjusting the respirator (if necessary, for comfort or to maintain fit).

Extended use alone is unlikely to degrade respiratory protection. However, healthcare facilities should develop clearly written procedures to advise staff to:

- Discard any respirator that is obviously damaged or becomes hard to breathe through.

Limited re-use of N95 respirators for COVID-19 patients

Limited re-use of N95 respirators when caring for patients with COVID-19 might become necessary. However, it is unknown what the potential contribution of contact transmission is for SARS-CoV-2, and caution should be used. Re-use should be implemented according to CDC guidance. Re-use has been recommended as an option for conserving respirators during previous respiratory pathogen outbreaks and pandemics. It may also be necessary to re-use N95 respirators when caring for patients with varicella or measles, although contact transmission poses a risk to HCP who implement this practice.

Sterilization systems for the re-use of N95 respirators

The Nevada Division of Emergency Management, Division of Public and Behavioral Health, and the Federal Emergency Management Agency have coordinated the use of a Battelle Sterilization System to sterilize N-95 masks for responders and health care workers in Nevada. Through the use of this system, N95 respirators will have the ability to be sterilized and re-used up to 20 times. Beginning in May 2020, the State of Nevada will acquire and organize the operations of a Battelle Unit in the state to decontaminate N-95 respirators. This program will be available and at no cost to all Nevada
healthcare facilities and first responders. This is an opportunity for all Nevada healthcare workers and first responders to prolong the use of their N95 respirator supply.

**Prioritize the use of N95 respirators and facemasks by activity type**

The number of infectious particles required to cause an infection (infectious dose) is often uncertain or unknown for respiratory pathogens. Further, there is often uncertainty about the influence of factors such as exposure duration and nature of clinical symptoms on the likelihood of infection transmission from person-to-person. When facemasks must be used by HCP entering a patient care area, source control (i.e. masking of symptomatic patients) and maintaining distance from the patient are particularly important to reduce the risk of transmission.

This prioritization approach to conservation is intended to be used when N95 respirators are so limited that routinely practiced standards of care for all HCP wearing N95 respirators when caring for a COVID-19 patient are no longer possible. N95 respirators beyond their manufacture-designated shelf life, when available, are preferable to use of facemasks. The use of N95s or elastomeric respirators or PAPRs should be prioritized for HCP with the highest potential exposures including being present in the room during aerosol generating procedures performed on symptomatic persons.

**Suggested facemask or respirator use, based upon distance from a patient with suspected or known COVID-19 and use of source control***

<table>
<thead>
<tr>
<th>HCP planned proximity to the case patient during encounter</th>
<th>Facemask or respirator determination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Patient masked for entire encounter (i.e., with source control)</td>
<td>Unmasked patient or mask needs to be removed for any period of time during the patient encounter</td>
</tr>
<tr>
<td>HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: no facemask or respirator</td>
<td>HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: no facemask or respirator</td>
</tr>
<tr>
<td>HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: facemask</td>
<td>HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: facemask</td>
</tr>
<tr>
<td>Facemask</td>
<td>N95 respirator/ elastomeric /PAPR, based on availability</td>
</tr>
<tr>
<td>N95 respirator/ elastomeric /PAPR, based on availability</td>
<td>N95 respirator/ elastomeric /PAPR, based on availability</td>
</tr>
</tbody>
</table>

*Based on availability, organizations may require and/or individuals may voluntarily choose to utilize higher levels of protection

**When No Respirators are Left**

**Administrative Controls**

Exclude HCP at higher risk for severe illness from COVID-19 from contact with known or suspected COVID-19 patients

During severe resource limitations, consider excluding HCP who may be at higher risk for severe illness from COVID-19, such as those of older age, those with chronic medical conditions, or those who may be pregnant, from caring for patients with confirmed or suspected COVID-19 infection.

**Designate convalescent HCP for provision of care to known or suspected COVID-19 patients**
It may be possible to designate HCP who have clinically recovered from COVID-19 to preferentially provide care for additional patients with COVID-19. Individuals who have recovered from COVID-19 infection may have developed some protective immunity, but this has not yet been confirmed.

**Engineering Controls**

*Expedient patient isolation rooms for risk-reduction*

Portable fan devices with high-efficiency particulate air (HEPA) filtration that are carefully placed can increase the effective air changes per hour of clean air to the patient room, reducing risk to individuals entering the room without respiratory protection. NIOSH has developed guidance for using portable HEPA filtration systems to create expedient patient isolation rooms. The expedient patient isolation room approach involves establishing a high-ventilation-rate, negative pressure, inner isolation zone that sits within a “clean” larger ventilated zone. In the absence of any remaining supply of N95 respirators, it may be possible to use this technology in conjunction with HCP wearing facemasks.

*Ventilated Headboards*

NIOSH has developed the ventilated headboard that draws exhaled air from a patient in bed into a HEPA filter, decreasing risk of HCP exposure to patient-generated aerosol. This technology consists of lightweight, sturdy, and adjustable aluminum framing with a retractable plastic canopy. The ventilated headboard can be deployed in combination with HEPA fan/filter units to provide surge isolation capacity within a variety of environments, from traditional patient rooms to triage stations, and emergency medical shelters. In the absence of any remaining supply of N95 respirators, it may be possible to use this technology in conjunction with HCP and/or patients wearing facemasks.

**Personal Protective Equipment and Respiratory Protection**

*HCP use of non-NIOSH approved masks or homemade masks*

In settings where N95 respirators are so limited that routinely practiced standards of care for wearing N95 respirators and equivalent or higher level of protection respirators are no longer possible, and surgical masks are not available, as a last resort, it may be necessary for HCP to use masks that have never been evaluated or approved by NIOSH or homemade masks. It may be considered to use these masks for care of patients with COVID-19, tuberculosis, measles, and varicella. However, caution should be exercised when considering this option. Simple Respiratory Mask

**Full CDC Guidance:** [Strategies for Optimizing the Supply of N95 Respirators: Crisis/Alternate Strategies](https://www.cdc.gov/coronavirus/2019-ncov/hcp/ppe/strategies.html)
Strategies for Optimizing the Supply of Isolation Gowns

Cancel all elective and non-urgent procedures and appointments for which a gown is typically used by HCP.

Extended use of isolation gowns.
Consideration can be made to extend the use of isolation gowns (disposable or cloth) such that the same gown is worn by the same HCP when interacting with more than one patient known to be infected with the same infectious disease when these patients housed in the same location (i.e., COVID-19 patients residing in an isolation cohort). This can be considered only if there are no additional co-infectious diagnoses transmitted by contact (such as Clostridioides difficile) among patients. If the gown becomes visibly soiled, it must be removed and discarded as per usual practices.

Re-use of cloth isolation gowns.
Disposable gowns are not typically amenable to being doffed and re-used because the ties and fasteners typically break during doffing. Cloth isolation gowns could potentially be untied and retied and could be considered for re-use without laundering in between.

In a situation where the gown is being used as part of standard precautions to protect HCP from a splash, the risk of re-using a non-visibly soiled cloth isolation gown may be lower. However, for care of patients with suspected or confirmed COVID-19, HCP risk from re-use of cloth isolation gowns without laundering among (1) single HCP caring for multiple patients using one gown or (2) among multiple HCP sharing one gown is unclear. The goal of this strategy is to minimize exposures to HCP and not necessarily prevent transmission between patients. Any gown that becomes visibly soiled during patient care should be disposed of and cleaned.

Prioritize gowns.
Gowns should be prioritized for the following activities:

- During care activities where splashes and sprays are anticipated, which typically includes aerosol generating procedures
- During the following high-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of healthcare providers, such as:
  - Dressing, bathing/showering, transferring, providing hygiene, changing linens, changing briefs or assisting with toileting, device care or use, wound care

Surgical gowns should be prioritized for surgical and other sterile procedures. Facilities may consider suspending use of gowns for endemic multidrug resistant organisms (e.g., MRSA, VRE, ESBL-producing organisms).

When No Gowns Are Available
Consider using gown alternatives that have not been evaluated as effective.

In situation of severely limited or no available isolation gowns, the following pieces of clothing can be considered as a last resort for care of COVID-19 patients as single use. However, none of these options can be considered PPE, since their capability to protect HCP is unknown. Preferable features include long sleeves and closures (snaps, buttons) that can be fastened and secured.

- Disposable laboratory coats
- Reusable (washable) patient gowns
- Reusable (washable) laboratory coats
- Disposable aprons
- Combinations of clothing: Combinations of pieces of clothing can be considered for activities that may involve body fluids and when there are no gowns available:
  - Long sleeve aprons in combination with long sleeve patient gowns or laboratory coats
  - Open back gowns with long sleeve patient gowns or laboratory coats
  - Sleeve covers in combination with aprons and long sleeve patient gowns or laboratory coats
Reusable patient gowns and lab coats can be safely laundered according to routine procedures.

- Laundry operations and personnel may need to be augmented to facilitate additional washing loads and cycles
- Systems are established to routinely inspect, maintain (e.g., mend a small hole in a gown, replace missing fastening ties) and replace reusable gowns when needed (e.g., when they are thin or ripped)

Link to full CDC Guidance: Strategies for Optimizing the Supply of Isolation Gowns
Strategies for Optimizing the Supply of Eye Protection

*Cancel all elective and non-urgent procedures and appointments for which eye protection is typically used by HCP.*

*Use eye protection devices beyond the manufacturer-designated shelf life during patient care activities.*

If there is no date available on the eye protection device label or packaging, facilities should contact the manufacturer. The user should visually inspect the product prior to use and, if there are concerns (such as degraded materials), discard the product.

*Prioritize eye protection for selected activities such as:*

- During care activities where splashes and sprays are anticipated, which typically includes aerosol generating procedures.
- During activities where prolonged face-to-face or close contact with a potentially infectious patient is unavoidable.

*Consider using safety glasses (e.g., trauma glasses) that have extensions to cover the side of the eyes.*

*Exclude HCP at higher risk for severe illness from COVID-19 from contact with known or suspected COVID-19 patients.*

- During severe resource limitations, consider excluding HCP who may be at higher risk for severe illness from COVID-19, such as those of older age, those with chronic medical conditions, or those who may be pregnant, from caring for patients with confirmed or suspected COVID-19 infection.

*Designate convalescent HCP for provision of care to known or suspected COVID-19 patients.*

- It may be possible to designate HCP who have clinically recovered from COVID-19 to preferentially provide care for additional patients with COVID-19. Individuals who have recovered from COVID-19 infection may have developed some protective immunity, but this has not yet been confirmed.

**Selected Options for Reprocessing Eye Protection**

*Adhere to recommended manufacturer instructions for cleaning and disinfection.*

When manufacturer instructions for cleaning and disinfection are unavailable, such as for single use disposable face shields, consider:

1) While wearing gloves, carefully wipe the inside, followed by the outside of the face shield or goggles using a clean cloth saturated with neutral detergent solution or cleaner wipe.
2) Carefully wipe the outside of the face shield or goggles using a wipe or clean cloth saturated with EPA-registered hospital disinfectant solution.
3) Wipe the outside of face shield or goggles with clean water or alcohol to remove residue.
4) Fully dry (air dry or use clean absorbent towels).
5) Remove gloves and perform hand hygiene.

**Full CDC Guidance:** [Strategies for Optimizing the Supply of Eye Protection](#)
Strategies for Optimizing the Supply of Facemasks

*Cancel all elective and non-urgent procedures and appointments for which a facemask is typically used by HCP.*

*Use facemasks beyond the manufacturer-designated shelf life during patient care activities.*

If there is no date available on the facemask label or packaging, facilities should contact the manufacturer. The user should visually inspect the product prior to use and, if there are concerns (such as degraded materials or visible tears), discard the product.

**Implement limited re-use of facemasks.**

Limited re-use of facemasks is the practice of using the same facemask by one HCP for multiple encounters with different patients but removing it after each encounter. As it is unknown what the potential contribution of contact transmission is for SARS-CoV-2, care should be taken to ensure that HCP do not touch outer surfaces of the mask during care, and that mask removal and replacement be done in a careful and deliberate manner.

- The facemask should be removed and discarded if soiled, damaged, or hard to breathe through.
- Not all facemasks can be re-used.
  - Facemasks that fasten to the provider via ties may not be able to be undone without tearing and should be considered only for extended use, rather than re-use.
  - Facemasks with elastic ear hooks may be more suitable for re-use.
- HCP should leave patient care area if they need to remove the facemask. Facemasks should be carefully folded so that the outer surface is held inward and against itself to reduce contact with the outer surface during storage. The folded mask can be stored between uses in a clean sealable paper bag or breathable container.

**Prioritize facemasks for selected activities such as:**

- For provision of essential surgeries and procedures
- During care activities where splashes and sprays are anticipated
- During activities where prolonged face-to-face or close contact with a potentially infectious patient is unavoidable
- For performing aerosol generating procedures, if respirators are no longer available

**When No Facemasks Are Available, Options Include**

*Exclude HCP at higher risk for severe illness from COVID-19 from contact with known or suspected COVID-19 patients.*

During severe resource limitations, consider excluding HCP who may be at higher risk for severe illness from COVID-19, such as those of older age, those with chronic medical conditions, or those who may be pregnant, from caring for patients with confirmed or suspected COVID-19 infection.

*Designate convalescent HCP for provision of care to known or suspected COVID-19 patients.*

It may be possible to designate HCP who have clinically recovered from COVID-19 to preferentially provide care for additional patients with COVID-19. Individuals who have recovered from COVID-19 infection may have developed some protective immunity, but this has not yet been confirmed.
Use a face shield that covers the entire front (that extends to the chin or below) and sides of the face with no facemask.

Consider use of expedient patient isolation rooms for risk reduction.

Portable fan devices with high-efficiency particulate air (HEPA) filtration that are carefully placed can increase the effective air changes per hour of clean air to the patient room, reducing risk to individuals entering the room without respiratory protection. NIOSH has developed guidance for using portable HEPA filtration systems to create expedient patient isolation rooms. The expedient patient isolation room approach involves establishing a high-ventilation-rate, negative pressure, inner isolation zone that sits within a “clean” larger ventilated zone.

Consider use of ventilated headboards

NIOSH has developed the ventilated headboard that draws exhaled air from a patient in bed into a HEPA filter, decreasing risk of HCP exposure to patient-generated aerosol. This technology consists of lightweight, sturdy, and adjustable aluminum framing with a retractable plastic canopy. The ventilated headboard can be deployed in combination with HEPA fan/filter units to provide surge isolation capacity within a variety of environments, from traditional patient rooms to triage stations, and emergency medical shelters.

HCP use of homemade masks:

In settings where facemasks are not available, HCP might use homemade masks (e.g., bandana, scarf) for care of patients with COVID-19 as a last resort. However, homemade masks are not considered PPE, since their capability to protect HCP is unknown. Caution should be exercised when considering this option. Homemade masks should ideally be used in combination with a face shield that covers the entire front (that extends to the chin or below) and sides of the face.

Full CDC Guidance: Strategies for Optimizing the Supply of Facemasks
Ventilators - Policy for Modifications to FDA-Cleared Devices

In the context of the COVID-19 public health emergency in which affected patients may develop respiratory illness, it is necessary to maintain an adequate supply of devices to treat patients who develop respiratory failure or respiratory insufficiency. The devices listed in Table 1, which include ventilators, anesthesia gas machines, and other respiratory devices, and their accessories, are needed to support patients who develop respiratory compromise from COVID-19 or other respiratory disorders.

Wherever possible, healthcare facilities should use FDA-cleared conventional/standard full featured ventilators when necessary to support patients with respiratory failure, or a device subject to an Emergency Use Authorization (EUA), if any. However, to help ensure the availability of the greatest possible number of devices for this purpose, and as described in more detail below, FDA does not intend to object to limited modifications to the indications, claims, functionality, or to the hardware, software, or materials of FDA-cleared devices used to support patients with respiratory failure or respiratory insufficiency, without prior submission of a premarket notification under section 510(k) of the FD&C Act and 21 CFR 807.81, for the duration of the declared public health emergency. This policy applies where a modification is made to the device that triggers the requirement that a manufacturer submit a new premarket notification (510(k)) to FDA. Examples of such changes could include a significant change or modification in design, material, chemical composition, energy source, or manufacturing process.

More specifically, this policy will create more flexibility for manufacturers that make device modifications to address current manufacturing limitations or supply shortages. Examples may include:

- Changes to the ventilator motor to allow an alternate supplier to meet the required design specifications
- Changes to the material in the ventilator tubing to allow for more flexible material sourcing

We believe this approach will help manufacturers that want to add production lines or manufacture at alternative sites which may have different manufacturing equipment to increase manufacturing capacity and supply and reduce supply change interruptions and manufacturing bottlenecks.

Table 1

<table>
<thead>
<tr>
<th>Classification Regulation</th>
<th>Device Type</th>
<th>Product Code</th>
<th>Device Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 CFR 868.5895</td>
<td>Ventilator, Continuous, Facility Use</td>
<td>CBK</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>Ventilator, Continuous, Minimal Ventilatory Support, Facility Use</td>
<td>MNT</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>Continuous, ventilator, home use NOU II</td>
<td>NOU</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>Ventilator, continuous, minimal ventilatory support, home use</td>
<td>NQY</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>Ventilator, continuous, non-life supporting</td>
<td>MNS</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>Mechanical Ventilator</td>
<td>ONZ</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5925</td>
<td>Ventilator, Emergency, Powered (Resuscitator)</td>
<td>BTL</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5160</td>
<td>Gas-machine, anesthesia</td>
<td>BSZ</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5905</td>
<td>Ventilator, non-continuous (respirator) Including masks and interfaces under the same product code</td>
<td>BZD</td>
<td>II</td>
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<tr>
<td></td>
<td>Conserver, Oxygen</td>
<td>NFB</td>
<td>II</td>
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<tr>
<td></td>
<td>Device, Positive Pressure Breathing, Intermittent</td>
<td>NHJ</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>Resuscitator, Manual, Non-Self Inflating</td>
<td>NHK</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5454</td>
<td>High flow/high velocity humidified</td>
<td>QAV</td>
<td>II</td>
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</tbody>
</table>
1. Modifications to FDA-Cleared Indications, Claims, or Functionality

In developing this policy, FDA’s intent is to foster the continued availability of safe and effective medical devices while being flexible regarding modifications made to ventilators, anesthesia gas machines and other respiratory devices, and their accessories, in response to the COVID-19 public health emergency.

As noted above, wherever possible, healthcare facilities should use FDA-cleared conventional/standard full-featured ventilators to treat patients who develop respiratory failure or respiratory insufficiency. However, for the duration of the public health emergency, to help foster the wider availability of devices for patients in need of ventilatory support, FDA does not intend to object to modifications to the FDA-cleared indications, claims, or functionality of these devices, without prior submission of a premarket notification where the modification will not create an undue risk in light of the public health emergency. Examples of circumstances where FDA currently believes a modification would not create such undue risk include:

1) The use of powered emergency ventilators and anesthesia gas machines for patients needing mechanical ventilation;
2) The use of ventilators outside their cleared environment of use (for example, use of a ventilator in a healthcare facility when it is only cleared for use at home or during transport);
3) The use of devices indicated for sleep apnea (including noncontinuous ventilators delivering continuous positive airway pressure (CPAP) or bilevel positive airway pressure (BiPAP)) to treat patients with respiratory insufficiency, provided that appropriate design mitigations are in place to minimize aerosolization;
4) The use of oxygen concentrators for primary supply when medically necessary and clinically appropriate.

2. Hardware, Software, and Material Changes to FDA cleared Ventilators and Anesthesia Gas Machines

As stated above, wherever possible, healthcare facilities should use conventional/standard full-featured ventilators to treat patients who develop respiratory failure or respiratory insufficiency. However, for the duration of the public health emergency, in order to help foster the wider availability of devices for patients in need of ventilatory support and to help manufacturers respond to potential device component disruptions in the supply chain, FDA does not intend to object to limited modifications to the FDA-cleared hardware, software, or materials, without prior submission of a premarket notification under section 510(k) of the FD&C Act and 21 CFR 807.81, where the modification does not create an undue risk in light of the public health emergency. Examples of circumstances where FDA currently believes a modification would not create such undue risk include:

1) Modifications to motors, batteries, or other electrical components;
2) Material changes to components in the gas pathway or with other patient tissue contact;
3) Introduction of filtration to minimize aerosolization.
4) Software modifications intended to modify the ventilation parameters including inspiratory pressure, tidal volumes, flow rates, positive end-expiratory pressure (PEEP) in accordance with any applicable device standard;
5) Software modifications implementing physiological closed loop (automated) algorithms for oxygen titration where the algorithms/devices are the subject of an FDA-approved Investigational Device Exemption (IDE);
6) Hardware and/or software modifications implementing the capability for remote monitoring and remote adjustment of ventilator parameters (i.e., adjustment of parameters by trained healthcare providers from outside an isolation unit to avoid unnecessary exposures).

Additionally, FDA does not intend to object to firms making modifications or adding to the hardware/software architectures to allow for increased remote monitoring and setting adjustment capability/availability to support additional claims or indications described above. One example is the addition of wireless and/or Bluetooth capability. For any such changes, manufacturers should develop and implement appropriate cybersecurity controls to assure device cybersecurity and maintain device functionality and safety. FDA recommends firms refer to the following FDA guidance documents for consideration when pursuing these design changes:
3. Use of Ventilator and Anesthesia Gas Machine Breathing Circuit Devices Beyond Their Indicated Shelf Life and Duration of Use

Ventilators and anesthesia gas machines are designed to work as a breathing circuit, which is comprised of various ancillary devices such as the tubing that connects the ventilator to the patient, filters, and humidifiers. Constituent parts of the breathing circuit may include, but are not limited to, those identified in Table 2:

<table>
<thead>
<tr>
<th>Classification Regulation</th>
<th>Device Type</th>
<th>Product Code</th>
<th>Device Classification</th>
</tr>
</thead>
<tbody>
<tr>
<td>21 CFR 868.5240</td>
<td>Anesthesia breathing circuit</td>
<td>OFP</td>
<td>I</td>
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<tr>
<td></td>
<td>Anesthesia breathing circuit</td>
<td>CAI</td>
<td>I</td>
</tr>
<tr>
<td>21 CFR 868.5260</td>
<td>Filter, Bacterial, Breathing-Circuit</td>
<td>CAH</td>
<td>II</td>
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<tr>
<td>21 CFR 868.5270</td>
<td>Heated breathing circuit</td>
<td>BZE</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5340</td>
<td>Cannula, Nasal, Oxygen</td>
<td>CAT</td>
<td>I</td>
</tr>
<tr>
<td>21 CFR 868.5440</td>
<td>Generator, oxygen, portable</td>
<td>CAW</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5450</td>
<td>Humidifier, Respiratory Gas, (Direct Patient Interface)</td>
<td>BTT</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5580</td>
<td>Mask, Oxygen</td>
<td>BYG</td>
<td>I</td>
</tr>
<tr>
<td>21 CFR 868.5730</td>
<td>Tube, Tracheal (W/Wo Connector)</td>
<td>BTR</td>
<td>II</td>
</tr>
<tr>
<td></td>
<td>Airway Monitoring System</td>
<td>OQU</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5895</td>
<td>Accessory to Continuous Ventilator (Respirator)</td>
<td>MOD</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5965</td>
<td>Attachment, Breathing, Positive End Expiratory Pressure</td>
<td>BYE</td>
<td>II</td>
</tr>
<tr>
<td>21 CFR 868.5975</td>
<td>Set, Tubing and Support, Ventilator</td>
<td>BZO</td>
<td>I</td>
</tr>
</tbody>
</table>

These breathing circuit devices might be labeled with specific durations of use and shelf life. Given the potential for extensive use of ventilators and anesthesia gas machines in response to the COVID-19 pandemic, and to avoid depletion of breathing circuit supplies, for the duration of the public health emergency, FDA does not intend to object to changes in the indicated shelf life and duration of use of these products for treating individual patients, without prior submission of a premarket notification under section 510(k) of the FD&C Act and 21 CFR 807.81, where the change does not create an undue risk in light of the public health emergency. Examples of circumstances where FDA currently believes a change would not create such an undue risk: the devices are used according to healthcare institutional protocols, or useful life is limited to the occurrence of malfunction or visible soiling.

4. Labeling of Modified Devices

In addition, FDA recommends that the devices described above use labeling that helps users better understand the device modifications such as:

1) A clear description of the device’s new indications, claims, or functions, and information on the device’s performance and potential risks.
2) Adequate instructions for use for the intended user and indicated environment(s) of use. The labeling highlight the differences in design compared to the unmodified, FDA cleared version of the device, along with instructions for mitigating any known risks associated with these differences.
3) A clear distinction delineating FDA-cleared indication and claims from those that are not FDA-cleared. In addition, FDA recommends the labeling include a general statement about changes that have not been cleared by FDA.

Preparedness Guidance for COVID-19

Comprehensive Hospital Preparedness Checklist for COVID-19

Planning for a community outbreak of Coronavirus Disease 2019 (COVID-19) is critical for maintaining healthcare services during a response. The Centers for Disease Control and Prevention (CDC), with input from partners, has developed a checklist to help hospitals (acute care facilities) assess and improve their preparedness for responding to a community-wide outbreak of COVID-19. Because of variability of outbreaks, as well as differences among hospitals (e.g., characteristics of the patient population, size of the hospital/community, scope of services), each hospital will need to adapt this checklist to meet its unique needs and circumstances. This checklist should be used as one of several tools for evaluating current plans or in developing a comprehensive COVID-19 preparedness plan. Additional information can be found at www.cdc.gov/coronavirus.

An effective COVID-19 hospital preparedness plan will incorporate information from state, regional, tribal and local health departments, emergency management agencies/authorities, hospital associations, and suppliers of resources. In addition, hospitals should refer to state and federal pandemic influenza plans to inform their response (available at https://www.cdc.gov/flu/pandemic-resources/pdf/pan-flu-report-2017v2.pdf). Hospitals will also need to ensure their plans comply with applicable state and federal regulations and with standards set by accreditation organizations, such as the Joint Commission on Accreditation of Healthcare Organizations (JCAHO). Comprehensive COVID-19 planning can also help facilities plan for other emergency situations.

All U.S. hospitals should be prepared for the possible arrival of patients with COVID-19. All hospitals should ensure their staff are trained, equipped and capable of practices needed to: (1) Prevent the spread of COVID-19 within the facility; (2) Promptly identify and isolate patients with possible COVID-19 and inform the correct facility staff and public health authorities; (3) Care for a limited number of patients with confirmed or suspected COVID-19 as part of routine operations; (4) Potentially care for a larger number of patients in the context of an escalating outbreak while maintaining adequate care for other patients; (5) Monitor and manage any healthcare personnel that might be exposed to COVID-19; and (6) Communicate effectively within the facility and plan for appropriate external communication related to COVID-19.

Full CDC Preparedness Checklist: Comprehensive Hospital Preparedness Checklist for COVID-19

Healthcare Professional Preparedness Checklist for Transport and Arrival of Patients with Confirmed or Possible COVID-19

Front-line healthcare personnel in the United States should be prepared to evaluate patients for coronavirus disease 2019 (COVID-19). The following checklist highlights key steps for healthcare personnel in preparation for transport and arrival of patients with confirmed or possible COVID-19.

Stay up to date on the latest information about signs and symptoms, diagnostic testing, and case definitions for coronavirus disease 2019.

Full CDC Preparedness Checklist: Healthcare Professional Preparedness Checklist For Transport and Arrival of Patients With Confirmed or Possible COVID-19
Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed Coronavirus Disease 2019 (COVID-19) in Healthcare Settings

1. Minimize Chance for Exposures

Ensure facility policies and practices are in place to minimize exposures to respiratory pathogens including SARS-CoV-2, the virus that causes COVID-19. Measures should be implemented before patient arrival, upon arrival, throughout the duration of the patient’s visit, and until the patient’s room is cleaned and disinfected. It is particularly important to protect individuals at increased risk for adverse outcomes from COVID-19 (e.g. older individuals with comorbid conditions), including HCP who are in a recognized risk category.

2. Adhere to Standard and Transmission-Based Precautions

Standard Precautions assume that every person is potentially infected or colonized with a pathogen that could be transmitted in the healthcare setting. Elements of Standard Precautions that apply to patients with respiratory infections, including COVID-19, are summarized below. Attention should be paid to training and proper donning (putting on), doffing (taking off), and disposal of any PPE. This document does not emphasize all aspects of Standard Precautions (e.g., injection safety) that are required for all patient care; the full description is provided in the Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

3. Patient Placement

For patients with COVID-19 or other respiratory infections, evaluate need for hospitalization. If hospitalization is not medically necessary, home care is preferable if the individual’s situation allows.

If admitted, place a patient with known or suspected COVID-19 in a single-person room with the door closed. The patient should have a dedicated bathroom.

As a measure to limit HCP exposure and conserve PPE, facilities could consider designating entire units within the facility, with dedicated HCP, to care for known or suspected COVID-19 patients. Dedicated means that HCP are assigned to care only for these patients during their shift.

Limit transport and movement of the patient outside of the room to medically essential purposes.

4. Take Precautions When Performing Aerosol-Generating Procedures (AGPs)

Some procedures performed on patient with known or suspected COVID-19 could generate infectious aerosols. In particular, procedures that are likely to induce coughing (e.g., sputum induction, open suctioning of airways) should be performed cautiously and avoided if possible.

5. Collection of Diagnostic Respiratory Specimens

When collecting diagnostic respiratory specimens (e.g., nasopharyngeal swab) from a possible COVID-19 patient, the following should occur:

- HCP in the room should wear an N-95 or higher-level respirator (or facemask if a respirator is not available), eye protection, gloves, and a gown.
- The number of HCP present during the procedure should be limited to only those essential for patient care and procedure support. Visitors should not be present for specimen collection.
- Specimen collection should be performed in a normal examination room with the door closed.
- Clean and disinfect procedure room surfaces promptly as described in the section on environmental infection control below.

Full CDC guidance: Infection Prevention and Control Recommendations for Patients with Suspected or Confirmed COVID-19 in Healthcare Settings
Strategies to Prevent and Mitigate the Spread of COVID-19 in Jails and Prisons

The population density and quick cycling of inmate/detainees in and out of correctional facilities creates a heightened risk of the 2019 novel coronavirus (COVID-19) infection being transmitted to inmate/detainees and staff. In addition, people in jails, prisons, and other detention facilities typically have a greater underlying disease burden and worse health conditions than the general population. They also frequently face greater exposure to risks, such as: smoking; poor hygiene; and weak immune defenses due to stress, poor nutrition, or the prevalence of coexisting diseases, such as: bloodborne viruses; tuberculosis; and substance use disorders. Therefore, the Nevada Department of Health and Human Services (DHHS) has developed strategies to assist jails, prisons, and other detention facilities to respond to the outbreak.

Most correctional facilities already have a written health promotion, safety, and disease prevention plan that addresses exposure control, medical isolation, and standard precautions used to detect and prevent the spread of other respiratory viruses like the influenza. Those same outbreak management principles should be used with the COVID-19 virus, and the DHHS recommendations below should complement but not replace, those general prevention and control standards.

Limit Visitation

**Social Visits:** Restrict or suspend all social visitation for 30 days and then re-evaluate at that time. To maintain inmate/detainee social contact, it is recommended facilities allow for increased inmate/detainee telephone communications and use alternative contact-visitation methods, such as video visits (where available) or tablets. The phone and video visits should be provided at no charge to the inmate/detainee. If visiting is allowed, screen the visitors using the same procedures the facility uses for staff. Visitors who are symptomatic should be excluded from visiting.

Decisions to limit or restrict social visits need to consider the particular impact on the mental well-being of the inmate/detainee and the increased levels of anxiety that separation from children and the outside world may cause.

**Legal Visits:** Restrict or suspend in-person legal visits for 30 days and then re-evaluate at that time. To ensure inmates/detainees have access to legal counsel, use alternative visitation methods (e.g., video conferencing). Provide case-by-case accommodations for attorneys seeking in-person visits, and if attorneys are approved for in-person visits, screen them for the virus using the same procedures the facility uses for staff.

**Contractors:** Restrict or suspend contractor access to the facility for 30 days unless the person is there to perform essential services (e.g., medical care, mental healthcare, religious functions/services) or is there to perform necessary maintenance on essential systems; reassess after 30 days. For contractors allowed access to the facility, screen them using the same procedures the facility uses for staff.

**Volunteers and non-essential service providers:** Suspend volunteers and non-essential service providers for 30 days; then reassess the situation. Allow exceptions for volunteers providing religious functions/services. For those allowed access to the facility, screen them using the same procedures the facility uses for staff.

Facility Prevention Strategies

- Conduct a COVID-19 risk assessment of all persons entering the facility: inmate/detainees, visitors, and facility staff.
  - All symptomatic inmates should be screened and tested, if tests are available. If an inmate tests positive, or testing is not available, but they are symptomatic, they should be isolated based on these guidelines for discontinuation or released after 2 negative tests conducted 24 hours apart.
    - At least 3 days (72 hours) have passed recovery defined as resolution of fever without the use of fever-reducing medications; and,
    - Improvement in respiratory symptoms (e.g., cough, shortness of breath); and,
    - At least 7 days have passed since symptoms first appeared.
  - Collect information on the person’s history of cough and/or shortness of breath, travel history, and possible contact with confirmed cases within the last 14 days.
Provide clear messaging to staff so those who have traveled recently or who are coming from affected areas and who develop COVID-19 symptoms can self-isolate and their managers can provide a high level of vigilance and support of the isolating-staff.

- Be aware of stress on inmates due to decreased personal ability to control or minimize exposure to the virus. Inmates may perceive that their environment is unclean or unsafe, increasing anxiety and agitation.
- Any inmate/detainee who presents with signs, symptoms, and exposure criteria consistent with COVID-19 should be isolated and tested, per local health authority protocols, and immediately placed on contact and droplet precautions for 14 days, unless otherwise cleared.
  - Place symptomatic inmates/detainees in single rooms if space is available. If space is not available, place symptomatic inmates/detainees together in a designated area of the facility.
- If possible, maintain incoming inmate/detainees in a designated isolation unit for 14 days prior to release into general population.
- If aerosol-generating medical procedures are needed, all healthcare workers should wear an N95 respirator (and eye protection).
- Incorporate social distancing measures: cancel all inmate/detainee group activities (recreation, education, chapel, therapy and support groups (e.g., Alcoholics Anonymous)) and events where people gather; cancel communal dining, stagger meals and recreational activities; provide the pill line by unit or administer medications on the units.
- Screen inmates/detainees who work in food service and health services.
- Minimize self-serve in food service (eliminate salad bars, etc.).
- Temporarily suspend handshakes.
- Limit facility points of entry.
- Use logs on each unit to document staff and inmate/detainee entry.
- Restrict moving inmates/detainees between housing units.
- For a sample screening flow chart, see the Clark County Detention Center’s flow chart on page 12 of this document.

**Prevention Strategies for Law Enforcement Officers Who Transport Detainees to Jail**

Recommendations for law enforcement officers who, during an apprehension, come into close contact with a person who has been confirmed or is suspected of having COVID-19:

- Clean and disinfect the duty belt and gear prior to reuse.
  - Use a household cleaning spray or wipe, as outlined on the product label.
- Follow standard operating procedures for the containment and disposal of used PPE.
- Follow standard operating procedures for containing and laundering clothes.
- Avoid shaking the clothes.

The CDC provides guidance for law enforcement officers who make contact with persons confirmed or suspected to have COVID-19. The guide can be accessed at: [https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-for-ems.html](https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-for-ems.html)

**Facility Mitigation Strategies**

In addition to following the facility’s infection disease management plan, implement modified operations and administrative controls for 30 days; then reassess the situation. Recommended strategies include:

- Isolate any asymptomatic inmate/detainee with exposure risk factors.
- Confine symptomatic inmates/detainees to their rooms.
- Isolate cellmates of symptomatic inmates/detainees until it is determined the cellmates are symptom free.
- If transportation of a symptomatic person is necessary, have the affected person wear a mask to contain respiratory secretions.
• Collaborate with the local health department to arrange appropriate medical care for inmates/detainees who are sick and scheduled for release.

• Transfers of symptomatic inmates/detainees from county to state facilities should be limited, prudent, and reviewed by the receiving facility’s medical team before the inmate/detainee is transferred.

• Work in collaboration with your local health department to arrange appropriate aftercare for inmates/detainees who are sick and scheduled for release.

• Designate staff to work on either affected or non-affected units in order to avoid cross contamination.

• Ensure only trained staff wearing appropriate personal protective equipment (PPE) have contact with inmates/detainees who have or who may have the virus. Follow the CDC’s Interim Guidance for Emergency Medical Services (EMS) Systems for PPE. The resource is available at: https://www.cdc.gov/coronavirus/2019-ncov/hcp/guidance-for-ems.html

• Have a proactive sick leave policy and follow the CDC’s recommended work restrictions and monitoring based on staff exposure to COVID-19 individuals.

• Provide staff with information about COVID-19 symptoms so they can self-assess before reporting for duty.

• Advise staff to check for any signs of illness before reporting to work each day and to notify their supervisor if they become ill while at work.

• Screen symptomatic staff if they present to work with symptoms or if they develop them while at work.

• In settings of widespread transmission, consider screening all staff for fever or respiratory symptoms before they can enter the facility.

• Consider identifying staff who may be at higher risk for COVID-19 and assigning them to unaffected units, if possible.

• Follow the most updated public health requirements for when staff can return to work after having a COVID-19 diagnosis.

• Make contingency plans for increased absenteeism caused by staff illness or by illness in staffs’ family members that would require staff to stay home. Contingency planning includes:
  o Identifying and prioritizing essential and non-essential functions;
  o Identifying minimum staffing needs for essential facility operations;
  o Extending shift hours;
  o Cross-training current staff or hiring temporary staff; and
  o Collaborating with the local health department to identify facility space that could be adapted for use as an isolation area for symptomatic individuals.
Attachment A
Crisis Standards of Care During COVID-19 Pandemic: Allocation of Limited Resources
The following attachment is an example of a locally adopted Crisis Standards of Care During COVID-19 Pandemic: Allocation of Limited Resources document that was reviewed and endorsed by the Governor’s COVID-19 Medical Advisory Team members for adoption within Washoe County. This attachment is an example of what may be adopted by other local health jurisdictions during this pandemic response.
Crisis Standards of Care During COVID-19 Pandemic: Allocation of Limited Resources

April 3, 2020
Revised April 6, 2020
Revised April 8, 2020
Revised April 10, 2020
Revised April 11, 2020
State Medical Advisory Team Determination of Consistency with State Crisis Standards of Care April 14, 2020

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Introduction

This document serves to provide guidance for allocation of adult patient care resources (including intensive care beds and ventilators) in the event that, during a public healthcare emergency such as a viral pandemic or acute disaster, demand for such services outstrip resources. These guidelines are provided in accordance with guidelines provided in the 2020 Nevada Crisis Standards of Care Plan (NCSCP)\(^1\). The NCSCP is “an all-hazards plan that works in conjunction with the Nevada Division of Emergency Management’s State Comprehensive Emergency Management Plan (SCEMP) and serves as the framework for supporting the ethical and effective provision of medical care during a catastrophic public health disaster”.

An essential feature of this proposal is that it does not use categorical exclusion criteria; all individuals are “worth saving.” It proposes keeping all patients who would receive critical care during routine clinical circumstances eligible for such care. The limitation to access to critical care/ventilator is determined by the availability of beds and services. It is important to note that there are some conditions that lead to immediate or near-immediate death despite aggressive therapy such that during routine clinical circumstances clinicians do not provide critical care services (e.g., cardiac arrest unresponsive to appropriate ACLS, massive intracranial bleeds, intractable shock). During a public health emergency, clinicians should still make clinical judgments about the appropriateness of critical care using the same criteria they use during normal clinical practice.

There are several components of the ethical framework that underlie our guidelines\(^2\)-\(^6\):

1. The duty to care is the fundamental obligation of providers to care for patients.
2. The duty to steward resources is the need to responsibly manage resources during periods of true scarcity.
3. The duty to plan is the responsibility of government to plan for a foreseeable crisis.
4. Distributive justice requires that an allocation system is applied broadly and consistently to be fair to all.
5. Transparency ensures that the process of developing a clinical ventilator allocation protocol is open to feedback and revision, which helps promote public trust in these guidelines.

Based on these five components, the following ethical considerations where used for developing the guidelines and recommendations outlined in this document:

1. Is the health outcome used to guide allocation (lives saved or years of life) ethically defensible?
2. Are the limited resources allocated in a way that is fair, consistent and transparent?
3. Are the limited resources allocated without favoring privileged groups?
4. Have the interests of vulnerable groups been considered?
5. Are there provisions for palliative care and support in the algorithms to care for those who are not to receive scarce resources?
6. Do those who are creating the allocation algorithms have any professional or personal conflicts?
7. If algorithms favor providers of a key service are those decisions being made in a transparent, consistent and reasonable manner?
Furthermore, consideration was given in exploring various non-clinical approaches to allocating ventilators, including distributing ventilators on a first-come first-serve basis, randomizing ventilator allocation (e.g., lottery), requiring only physician clinical judgment in making allocation decisions and prioritizing certain patient categories (i.e., health care workers and patients with certain social criteria). After careful consideration it was concluded that these approaches would not be the best primary method to allocate scarce resources because they are often subjective and do not support the goal of saving the most lives. Furthermore, advanced age was rejected as a triage criterion because it discriminates against the elderly. Age already factors indirectly into any criteria that assess the overall health of an individual (because the likelihood of having chronic medical conditions increases with age) and there are many instances where an older person could have a better clinical outlook than a younger person. Thus, the guidelines for ventilator allocation should utilize clinical factors only to give patients who are deemed most likely to survive with ventilator therapy an opportunity for treatment.

**Phased Allocation of Limited Resources**

As a pandemic emerges within a community there will be a predictable strain on the healthcare system that parallels the incidence of the infection curve. There will be three phases, which are described below. It is difficult to know prospectively exactly where a community is on the incidence of infection curve, relative to the “surge”. There are however, clinical circumstances that can offer insight as to how to best manage patients and resources.

Of great concern is the potential of withholding limited resources from an individual prematurely in anticipation of the community needing them, and later learning there would have been enough resources to care for that individual. On the other hand, if resources are used on a first come, first served basis, there is the potential to use limited resources on patients that did not have the best chance for survival. This approach is in opposition to the primary directive in a pandemic to “do the most good, for the most people.”

To mitigate the risk of limiting resources too early or too late one must recognize the phases of a crisis and their varying degree of strain on the healthcare system(s). Each phase, in and of itself, requires different allocation of limited resources. Phase identification is assessed continuously based on resource inventory by Incident Command. The three phases are as follows:

**Phase I**

In this phase, there are enough standard of care resources (beds/ventilators) for everyone that presents for medical care. Institutional capacity has not been reached.

**Phase II**

In this phase, standard of care resources have been exhausted, but there are alternative means to deliver care (e.g., transport ventilators, CPAP, improvised treatment areas.) Standard capacity has been exhausted but alternative strategies allow for increased volume of patient care. The following actions will be taken:
• Activation of Crisis Standards of Care During COVID-19 Pandemic: Allocation of Limited Resources protocols are initiated. All patients will be categorized by clinical means using the Sequential Organ Failure Assessment (SOFA) score for future triage if Phase III is reached.

• When Phase II is initiated, standard resources have reached capacity and critical care resources will be deemed non-beneficial for certain conditions outlined in Table 1.

• Blue category – (SOFA>11), lowest priority (lowest likelihood of survival) receives next available limited resources.

Phase III

In this phase, all alternative resources have been exhausted. Allocation of resources will be determined by resource allocation priority as determined by the Triage Committee.

• Blue category – (SOFA>11), lowest priority (lowest likelihood of survival) does not receive limited resources but will receive medical care, palliative care and hospice referral.

In Phase II/III non-beneficial treatment shall not be provided as determined by the attending provider.

For Phases I, II and III the following steps will be followed:

1. In all phases, all patients are evaluated for treatment.
2. In Phase I, critical care resources will be allocated as indicated by their need.
3. In Phase II/III, critical care resource allocation will be determined by SOFA classification and Table 1 criteria.
4. The provider assesses the function of six key organs: lungs, liver, brain, kidneys, blood clotting and heart. The function of these six organs form the basis for the SOFA score (Table 2). Originally, the use of SOFA scores was developed by the Ontario Health Plan for an Influenza Pandemic (OHPIP) plan in 2006. Subsequently many jurisdictions in Canada and the USA have adapted this score as the basis for ventilator allocation when demand exceeds capacity.
5. Based on the information gathered, the SOFA score is calculated. A perfect SOFA score, indicating normal function in all six categories, is zero; the worst possible score is 24 and indicates life-threatening abnormalities in all six systems. The SOFA score will be used as a proxy for mortality risk.
6. For most patients who are sick with only COVID-19 and have no other comorbidities, the single organ failure is often limited to their lungs, which gives them a low SOFA score. However, because the clinical ventilator allocation protocol applies to all patients in need of a ventilator, a patient may

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\(a\) Despite the criticism that SOFA may not adequately determine prognosis for individual patients in all circumstances, SOFA will be used until a better clinical tool is developed. SOFA is simple to use, with few variables or lab parameters, and the calculation of the score (i.e., simple addition) is straightforward, which makes SOFA a good tool to provide a consistent, clinical approach to allocate ventilators. The score is calculated only from clinical factors based on available medical evidence, and not personal values or subjective judgments, such as quality of life. The decision to use the SOFA score is supported by the fact that SOFA score as a proxy for mortality risk is currently used by several other jurisdictions, including New York State, Minnesota, Maryland, Utah, and Pittsburgh.

\(b\) By design SOFA weights all six systems equally.
also have a comorbidity(s) that affects another organ system(s) which will increase his/her SOFA score. Intubation for control of the airway (without lung disease) is not considered lung failure.

7. The Triage Committee examines the available scores and will allocate the next available critical care resource(s) according to a patient’s SOFA score (Table 3a or Table 4a). While a SOFA score does provide discrete numbers, it is not appropriate to suggest that a score of 5 is indicative of a lower risk of mortality than a score of 6. Instead, both of these scores suggest that both patients have near equal probabilities of survival. Thus, all patients in the same color category have the same likelihood of survival.

8. Each patient allocated a ventilator will have his/her SOFA score reassessed at 48 and 120 hours. The decision whether a patient remains on a ventilator is based on his/her SOFA score and the magnitude of change in the SOFA score compared to the results from the previous official clinical assessment (Table 3b and 3c or Table 4b and 4c). The primary difference between the 48 and 120-hour assessment is the extent of improvement in overall health prognosis and of the trajectory of a patient’s health status required to continue to be eligible for ventilator therapy. At 48 hours, because a patient has had only two days to benefit from ventilator therapy, the progress required to justify continued ventilator use is not expected to be dramatic. However, after 120 hours, a patient must demonstrate a pattern of further significant improvement in health to justify continued ventilator use.

Although additional clinical assessments may be performed, the official SOFA assessments only occur after 48 and 120 hours of ventilator therapy. No formal triage decision or action may be taken until a patient’s official assessment. However, at any point during the time trial, even before an official assessment occurs, if a patient develops a condition on the exclusion criteria list and there is an eligible patient waiting, then the ventilator is reallocated. A patient who no longer meets the criteria for continued ventilator use receives alternative forms of medical intervention and/or palliative care.

Mortality Risk Assessment and Periodic Reassessment
Decision to offer Critical Care, ICU admission and Ventilation

Consistent with an ethically sound framework for healthcare during public health emergencies, when one must balance the patient-centered duty of care with public-focused duties to promote equality of persons and equity in distribution of risks and benefits in society, the primary goal of the allocation framework during a public healthcare emergency is to maximize benefit to populations of patients, specifically by maximizing survival to hospital discharge and beyond for as many patients as possible.

During the declared public health emergency, all patients who meet usual medical indications for admission to an ICU will be assigned a SOFA score. The SOFA score assists in determining a patient’s likelihood of surviving from hospital admission to hospital discharge (lower scores indicate higher likelihood of benefit from critical care) \(^5\). The SOFA score is converted to four color-coded priority groups (Tables 3A, 3B, and 3C) to facilitate streamlined implementation. All patients will be assessed and are eligible to receive available critical care resources. These resources will be allocated according to SOFA score and resource availability.
In the event that there are ties in priority scores between patients, life-cycle considerations will be used as a tiebreaker, with priority going to younger life-stage patients, who have had less opportunity to live through life’s stages. Life stages will be defined by these four categories: young adulthood (40 years and younger), middle adulthood (41 to 60 years), late adulthood (61-74 years) and lastly those 75 years and up.

Next, if a tie cannot be broken by life-cycle criteria, priority will be given to frontline first responders and hospital staff, specifically, those whose work directly supports the provision of acute care to others.

Individuals who perform tasks that are vital to the public health response, including all those whose work directly supports the provision of acute care to others, should be given heightened priority. This category should be broadly construed to include those individuals who play a critical role in the chain of treating patients. However, it would not be appropriate to prioritize front-line physicians and not prioritize other front-line clinicians (e.g., nurses and respiratory therapists) and other key personnel (e.g., maintenance staff that disinfects hospital rooms). The rationale for this priority is based on the acknowledgment that the recovery of these individuals would allow the greatest potential for the healthcare system to maximize ‘saving the most lives’ by returning them to work after recovery.

All patients who are allocated critical care services will be allowed a therapeutic trial of 48 hours and subsequently 120-hour duration to determine the benefits of therapy. All patients receiving critical care/ventilation will be reassessed, using the SOFA scoring system as well as appraisal of new clinical complications from the treating clinicians. The ethical justification for such reassessment is that, in a public health emergency when there are not enough critical care resources for all, the goal of maximizing population outcomes would be jeopardized if patients who were determined to be unlikely to survive were allowed indefinite use of scarce critical care services. In addition, periodic reassessments lessen the chance that arbitrary considerations, such as when an individual develops critical illness, unduly affect patients’ access to treatment.

Patients with clear clinical deterioration resulting in higher SOFA scores that would put them in a different color-coded category, would become candidates for discontinuation of ventilation, if patients with lower scores were waiting for a ventilator.

Although patients will generally be given the full duration of a trial (i.e. 48 and 120 hours), if patients experience a precipitous decline (e.g., refractory shock and DIC) or a highly morbid complication (e.g., massive stroke) which portends a very poor prognosis, a decision may be taken before the completion of the specified trial length that the patient is no longer eligible for critical care treatment.

Patients who are triaged to not receive ICU beds or services will be offered medical care including intensive symptom management and psychosocial support. Where available, specialist palliative care teams will provide additional support and consultation.
Decision to only Offer Intensive Symptom Management, Psychosocial Support and Palliative Care

It is critical to ensure that all patients are assured of the best care possible. If available resources prevent patients from receiving treatment in an Intensive Care Unit, patients need to know that the best care possible will be provided within the resource limitations. This care will include but not be limited to intensive symptom management and psychosocial support with palliative care teams available for consultation.

Decision Not to Accept Transfer from Outside Hospitals

When demand exceeds care supply resources, the usual ability to accept patients from other hospitals may be severely impacted. Table 5 highlights conditions that under extraordinary circumstances warrant a decision not to accept transfers.

- Emergency Medical Treatment and Labor Act (EMTALA)

The Emergency Medical Treatment and Labor Act (EMTALA) states that a medical screening exam (MSE) must be provided to every individual who comes to the ED for examination of treatment for a medical condition to determine if they have an emergency medical condition (EMC). According to Centers for Medicare and Medicaid Services (CMS) Center for Clinical Standards and Quality/Quality, Safety and Oversight Group, EMTALA MSE and stabilization requirements can be waived in certain circumstances such as in the case of a public health emergency involving pandemic infectious disease. In the case that a waiver is granted, CMS will provide notice to covered hospitals through Regional Offices and/or State Agencies.

Code Status

Based on current literature, COVID-19 positive patients who are intubated and receive vasopressors have a >90% mortality risk. These patients will automatically receive a DNR status. The change to DNR status of such patients will be discussed with family members before a cardiopulmonary arrest occurs.

Triage Committee

The allocation of scarce resources will not be made by the attending of record providing care for patients; their role remains to be the best possible advocates for their patients. While the direct treatment team interacts with and conducts the clinical evaluation of a patient, a triage committee, which has no direct contact with the patient, examines pre-determined data provided by the attending physician and makes the decision about a patient’s level of access to a ventilator. The local (Northern Nevada) institutions participating in the NCSCP will designate three (3) triage officers from a pool of at least fifteen (15), who will apply the agreed upon guidelines described in this document to prioritize patients for access to limited healthcare resources (ventilators). Separating the roles of the direct treatment team and triage committee members reduces conflicts of commitments, promotes objectivity and minimizes moral distress.
It is important to recognize that the decisions of the Triage Committee are grounded in public health (community) ethics, not clinical ethics. As such, decisions of the Triage Committee are focused on the greatest good for the greatest number of people.

- **Triage Officers**

The Triage Committee will consist of at least fifteen appointed members. Desirable qualities of triage committee members are: integrity, no evident conflict of interest, strong leadership skills, effective communication and conflict resolution skills. The group should also include healthcare providers, including physicians, respiratory therapists or nurses with established expertise in the management of critically ill patients. The Triage Committee Members will be appointed by the appropriate approving body.

At any given time, three of the Triage Committee members will function as the Triage Officers. At least one of them should be a healthcare provider with established expertise in the management of critically ill patients. The three Triage Officers on duty will oversee the triage process, assess the agreed-upon data from all patients eligible for a ventilator, assign a level of priority for each, and communicate the level of priority to the patients’ treating physicians. The on-duty Triage Officers are expected to make decisions according to the allocation framework described below, which is designed to benefit the greatest number of patients, even though these decisions may not necessarily be best for some individual patients. The level of priority score for each patient will be decided by majority determination (using Table 6A, 6B and 7).

The Triage Officers have the responsibility and authority to apply the principles and processes of this document to make decisions about which patients will receive the highest priority for receiving critical care. They are also empowered to make decisions regarding reallocation of critical care resources that have previously been allocated to patients, again using the principles and processes in this document. In making these decisions, the Triage Officers should not use principles or beliefs that are not included in this document.

A large enough roster of appointed Triage Officers will be maintained to ensure that Triage Officers will be available on short notice at all times, and that they will have sufficient rest periods between shifts.

- **Triage Team**

In addition to the Triage Officers, the Triage Team should also consist of a nurse with acute care (e.g., critical care or emergency medicine) experience (even if no longer clinically active) and one administrative staff member who will conduct data-gathering activities, documentation and record keeping and assistance liaising with a hospital Command Center or bed management. The staff member will be provided with appropriate computer and IT support to maintain updated databases of patient priority levels and scarce resource usage (total numbers, location and type). The role of triage team members is to provide information to the Triage Officers and to help facilitate and support their decision-making process. A representative from hospital administration should also be linked to the team, in order to supervise maintenance of accurate records of triage scores and to serve as a liaison with hospital leadership.
The triage officers and team members should function in shifts lasting no longer than 13 hours, including 30 minutes of handoffs. Therefore, there should be two shifts per day to fully staff the triage function. Team decisions and supporting documentation should be reported daily to appropriate hospital leadership and incident command.

- **Triaging**

The Triage Officers on duty will use the described SOFA scoring system to determine priority scores of all patients eligible to receive the scarce critical care resource. For patients already being supported by the scarce resource, the evaluation will include reassessment to evaluate for clinical improvement or worsening at 48 hours and 120 hours after intubation. Each Triage Officer will review the information for each patient and assign a score. The three scores will be compared and when discrepant, a consensus will be sought. If no consensus is reached, the score provided by the majority of members will be the final score. If all 3 Triage Officers have a different score and no consensus can be reached, the median score will be assigned to the patient.

The Triage Officers on duty may encounter a situation where there are several patients in the red color (highest priority) code who are equally eligible for ventilator therapy. Further clinical examination of these patients in the red color category may not be useful or possible in a pandemic because it has already been determined using exclusion criteria and a SOFA score that all the individuals have equal (or near equal) likelihoods of survival. A secondary allocation system will take into effect.

In this situation, from an ethical point of view, a decision must be made whether to prioritize ‘maximizing benefits for the community’, ‘treating people equally’, ‘promoting instrumental value’, or ‘treating to the worst off’. It is elected to prioritize ‘maximizing benefits to the community’, which focuses on ‘saving the most lives’ and ‘saving the most-life years’.

When several patients are equally eligible for ventilator therapy, the Triage Officers will utilize life-cycle considerations as a tiebreaker, with priority going to younger patients who have had less opportunity to live through life stages. Life stages will be defined by these four categories: young adulthood (40 years and younger), middle adulthood (41 to 60 years), late adulthood (61-74 years) and lastly those 75 years and up. Next, if a tie cannot be broken by life-cycle criteria priority will be given to frontline first responders and hospital staff, specifically, those whose work directly supports the provision of acute care to others.

The Triage Officers will review the comprehensive list of priority scores for all patients and will communicate with the clinical teams immediately after a decision is made regarding allocation or reallocation of a critical care resource.
• **Communication of triage decisions to patients and families**

One of the three Triage Officers on duty will inform the affected patient’s attending physician about the triage decision. It will be the responsibility of the attending physician to inform the patient and/or the family. This would bridge naturally to a conveyance of prognosis, which is a responsibility of bedside physicians. It may limit the number of people exposed to a circulating pathogen and increase the ability of the Triage Officers to remain objective. The attending physician would emphasize that the triage decision was not made by the attending physician but is instead one that arose from the extraordinary emergency circumstances and reflect a public health decision. It may useful to explain the medical factors that informed the decision, as well as the factors that were not relevant (e.g., race, ethnicity, gender, insurance status, perceptions of social worth, immigration status, etc.). If resources permit, palliative care clinicians or social workers should be present or available to provide ongoing emotional support to the patient and family.

• **Appeals process for individual triage decisions and Triage Appeals Committee**

The Triage Appeals Committee is made up of at least three individuals, recruited from the following groups: medical leadership (e.g. Chief Medical Officer, Dean of the School of Medicine), nursing leadership (e.g. Chief Nursing Officer, Dean of the School of Nursing), legal counsel, a hospital ethics committee or consult service, and/or members of an institution’s ethics faculty. Three committee members are needed for a quorum to render a decision using a simple majority vote. The process can happen by telephone or in person, and the outcome will be promptly communicated to whomever brought the appeal.

It is possible appellants (patients, families or clinicians) will challenge individual triage decisions. Procedural fairness requires the availability of an appeals mechanism to resolve such disputes. On practical grounds, different appeals mechanisms are needed for the initial decision to allocate a scarce resource among individuals, none of whom are currently using the resource, and the decision whether to withdraw a scarce resource from a patient who is not clearly benefiting from that resource. This is because initial triage decisions for patients awaiting the critical care resource will likely be made in highly time-pressured circumstances. Therefore, an appeal will need to be adjudicated in real time to be operationally feasible. For the initial triage decision, the only permissible appeals are those based on a claim that an error was made by the triage team in the calculation of the SOFA score or use/non-use of a tiebreaker. The process of evaluating the appeal should only involve verifying the accuracy of the SOFA score calculation by recalculating it. The treating clinician should be prepared to explain the calculation to the patient or family on request.

Periodically, the Triage Appeals Committee should retrospectively evaluate whether the review process is consistent with effective, fair and timely application of the allocation framework.

Decisions to withdraw mechanical ventilation from a patient who is already receiving it may cause heightened moral concern. Therefore, there should be a robust process for appealing decisions to withdraw or reallocate critical care beds or services. Elements of this appeals process should include:
• The appellants will explain to the attending of record the grounds for their appeal.
• Appeals based on an objection to the overall allocation framework will not be granted.
• The attending of record will notify the Triage Appeals Committee of the appeal.
• The Triage Appeals Committee will review the appeal in real time.
• The appeals process must occur quickly enough as to not harm patients who are in the queue for scarce critical care resources.
• The Triage Appeals Committee will recalculate the SOFA score or the use/non-use of a tiebreaker.
• The ruling of the Triage Appeals Committee will be final.
• The Triage Appeals Committee will convey the ruling to the attending of record and the appellant.

Recognizing a Crisis

Recognizing the appropriate point in time to initiate Crisis Standards of Care is vitally important. As a pandemic surge within a community becomes imminent, the usual model of individualized care and shared decision making must transition to a community base triage model. The goal, “to do the greatest good, for the greatest number of people.”

In usual circumstances there are enough resources for everyone who needs intensive care to receive “standard of care” intensive care resources. When the demand for “standard of care” resources are outstripped by demand the community will be forced to use alternative strategies to meet the demands of the crisis.

Therefore, by definition, whenever non-standard resources are required to meet the demand to care for patients at any of our community facilities, then a crisis exists. This will serve as the formal point of activation for the allocation of limited resources.

Point of Activation

Activation of Crisis Standards of Care must be preceded by focused efforts to spare existing resources and procure as many anticipated needed resources as possible. These action should include but are not limited to: discontinuation of elective surgeries, strict ICU admission criteria, increasing inventory of key equipment, medications, and optimizing staffing levels.

Activation of Crisis Standards of Care During COVID-19 document should occur when either of the two circumstances exist:
1. All standard ventilators are in use, only alternative ventilators are available for additional patients.

Or
2. Improvised bed/staffing strategies are required to manage extreme patient volumes.

Acknowledgment

The Committee wishes to acknowledge reliance on the 2020 Nevada Crisis Standards of Care as well as other Federal, state, public health, health industry and academic crisis standards of care plans,
documents, references, recommendations, guidance and literature. The Committee has reviewed these resources carefully and has incorporated what it believes to be the best recommendations, elements and guidance into this Plan. In doing so, the Committee acknowledges that a pandemic may create a shift in focus from individual patients to the good of the community at large, and the intention of this Plan is to provide a medical and ethical framework to assure the best care possible despite resource limitations.

Limitation of Liability, Immunity and Exemption

This Crisis Standards of Care document was created while recognizing Emergency Directive 01114, issued by the Governor of the State of Nevada on April 1, 2020, which waived or suspended certain requirements, and allowed for broader protections under NRS 414.110, until specifically modified or terminated by a subsequent Directive. This Crisis Standards of Care document incorporates by reference all limitations of liability, immunities, and exemptions granted under Emergency Directive 011 and related statutes to the fullest extent possible under the laws of the State of Nevada and the United States. For ease of reference, NRS 414.110 provides in pertinent part as follows:

- All functions under this chapter and all other activities relating to emergency management are hereby declared to be governmental functions. Neither the State nor any political subdivision thereof nor other agencies of the State or political subdivision thereof, nor except in cases of willful misconduct, gross negligence, or bad faith, any worker complying with or reasonably attempting to comply with this chapter, or any order or regulation adopted pursuant to the provisions of this chapter, or pursuant to any ordinance relating to the necessary emergency procedures or other precautionary measures enacted by any political subdivision of the State, is liable for the death of or injury to persons, or for damage to property, as a result of any such activity.
- Any requirement for a license to practice any professional, mechanical, or other skill does not apply to any authorized worker who, in the course of performing his or her duties as such, practices that professional, mechanical or other skill during an emergency or disaster.
- As used in this section, “worker” includes, without limitation, any full-time or part-time paid, volunteer or auxiliary employee of this State, of any political subdivision thereof, of other states, territories, possessions or the District of Columbia, of the Federal Government, or any neighboring country, or of any political subdivision thereof, or of any agency or organization, performing services for emergency management at any place in this State subject to the order or control of, or pursuant to a request of, the State Government or any political subdivision thereof.
## Crisis Standards of Care Tables

<table>
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<th>Description</th>
<th>Page</th>
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<td>Table 4A</td>
<td>Phase II/III Assessment at Presentation (hour 0)</td>
<td>20</td>
</tr>
<tr>
<td>Table 4B</td>
<td>Phase II/III Assessment at Hour 48</td>
<td>21</td>
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<tr>
<td>Table 4C</td>
<td>Phase II/III Assessment at Hour 120</td>
<td>22</td>
</tr>
<tr>
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<td>Phase I Algorithm Hospital and ICU/Ventilator Admission Triage</td>
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<tr>
<td>Table 6B</td>
<td>Phase II/III Algorithm Hospital and ICU/Ventilator Admission Triage</td>
<td>25</td>
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<tr>
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<td>26</td>
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<td>27-28</td>
</tr>
<tr>
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<td>29</td>
</tr>
<tr>
<td>Table 10</td>
<td>FAST and Hospice Eligibility Criteria for Dementia</td>
<td>30</td>
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</table>
Table 1: Phase II/III Criteria Determination for Ineligibility to Receive Limited Critical Care Resources

- POLST with a DNR and comfort focused treatment
- Current Hospice or Hospice eligible (Table 7)
- Cardiac Arrest:
  - Unwitnessed arrest
  - Recurrent arrest without hemodynamic stability
  - Arrest unresponsive to standard ACLS interventions within 20 minutes
- Irreversible hypotension unresponsive to fluid resuscitation and vasopressor therapy
- Persistent coma or vegetative state (Modified Rankin Score ≥ 5; Table 8)
- Known severe Dementia who meets Hospice eligibility criteria (Table 9 Figure 1 and 2)
- Acute severe neurologic event such intracranial hemorrhage or acute stroke with minimal chance of recovery (neurosurgeon or neurology assessment)
- Incurable adult metastatic malignant disease
- Severe acute trauma (Appendix A)
- Severe burns with minimal chance of survival. Coordinate with the burn center (Appendix A)
- SOFA score >11
Table 2 SOFA Scoring

<table>
<thead>
<tr>
<th>Respiratory system, PaO2/FiO2 (mmHg)</th>
<th>SOFA score</th>
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<tbody>
<tr>
<td>&gt; 400</td>
<td>0</td>
</tr>
<tr>
<td>&lt; 400</td>
<td>1</td>
</tr>
<tr>
<td>&lt; 300</td>
<td>2</td>
</tr>
<tr>
<td>&lt; 200 with respiratory support</td>
<td>3</td>
</tr>
<tr>
<td>&lt; 100 with respiratory support</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Nervous system, Glasgow Coma Scale</th>
<th></th>
</tr>
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<tbody>
<tr>
<td>15</td>
<td>0</td>
</tr>
<tr>
<td>13–14</td>
<td>1</td>
</tr>
<tr>
<td>10–12</td>
<td>2</td>
</tr>
<tr>
<td>6–9</td>
<td>3</td>
</tr>
<tr>
<td>&lt; 6</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Cardiovascular system, Mean arterial pressure (MAP) OR administration of vasopressors required</th>
<th></th>
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<tr>
<td>MAP &gt; 70 mmHg</td>
<td>0</td>
</tr>
<tr>
<td>MAP &lt; 70 mm/Hg</td>
<td>1</td>
</tr>
<tr>
<td>Dopamine ≤ 5 μg/kg/min or dobutamine (any dose)</td>
<td>2</td>
</tr>
<tr>
<td>Dopamine &gt; 5 μg/kg/min OR epinephrine ≤ 0.1 μg/kg/min OR norepinephrine ≤ 0.1 μg/kg/min</td>
<td>3</td>
</tr>
<tr>
<td>Dopamine &gt; 15 μh/kg/min OR epinephrine &gt; 0.1 μg/kg/min OR norepinephrine &gt; 0.1 μg/kg/min</td>
<td>4</td>
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</tbody>
</table>

<table>
<thead>
<tr>
<th>Liver, Bilirubin (mg/dl) {μmol/L}</th>
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<tr>
<td>&lt; 1.2 {&lt; 20}</td>
<td>0</td>
</tr>
<tr>
<td>1.2–1.9 {20–32}</td>
<td>1</td>
</tr>
<tr>
<td>2.0–5.9 {33–101}</td>
<td>2</td>
</tr>
<tr>
<td>6.0–11.9 {102–204}</td>
<td>3</td>
</tr>
<tr>
<td>&gt; 12.0 {&gt; 204}</td>
<td>4</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Coagulation, Platelets ×10^3/ml</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>&gt; 150</td>
<td>0</td>
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<tr>
<td>&lt; 150</td>
<td>1</td>
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<tr>
<td>&lt; 100</td>
<td>2</td>
</tr>
<tr>
<td>&lt; 50</td>
<td>3</td>
</tr>
<tr>
<td>&lt; 20</td>
<td>4</td>
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<table>
<thead>
<tr>
<th>Kidneys, Creatinine (mg/dl) {μmol/L}; urine output</th>
<th></th>
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<tr>
<td>&lt; 1.2 {&lt; 110}</td>
<td>0</td>
</tr>
<tr>
<td>1.2–1.9 {110–170}</td>
<td>1</td>
</tr>
<tr>
<td>2.0–3.4 {171–299}</td>
<td>2</td>
</tr>
<tr>
<td>3.5–4.9 {300–440} (or urine output &lt; 500 ml/day)</td>
<td>3</td>
</tr>
<tr>
<td>&gt; 5.0 {&gt; 440}; urine output &lt; 200 ml/day</td>
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### Table 3A: Phase I Assessment at presentation (hour 0)

<table>
<thead>
<tr>
<th>Assessment of Mortality Risk/Organ Failure</th>
<th>Color Code and Level of Access</th>
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<tbody>
<tr>
<td>No significant organ failure AND/OR</td>
<td>GREEN</td>
</tr>
<tr>
<td>No significant requirement for lifesaving resources</td>
<td>Use alternative forms of medical intervention or defer or discharge</td>
</tr>
<tr>
<td></td>
<td>Reassess as needed</td>
</tr>
<tr>
<td><strong>SOFA ≤7</strong></td>
<td>RED</td>
</tr>
<tr>
<td>OR</td>
<td>Highest</td>
</tr>
<tr>
<td>Single organ failure</td>
<td>Admission to Intensive Care Unit</td>
</tr>
<tr>
<td></td>
<td>Ventilator Allocation</td>
</tr>
<tr>
<td><strong>SOFA 8-11</strong></td>
<td>YELLOW</td>
</tr>
<tr>
<td></td>
<td>Intermediate</td>
</tr>
<tr>
<td></td>
<td>Admission to Intensive Care Unit</td>
</tr>
<tr>
<td></td>
<td>Ventilator Allocation</td>
</tr>
<tr>
<td><strong>SOFA &gt;11 and/or Table 1 criteria</strong></td>
<td>BLUE</td>
</tr>
<tr>
<td></td>
<td>Admission to Intensive Care Unit</td>
</tr>
<tr>
<td></td>
<td>Ventilator allocation</td>
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Table 3B: Phase 1 Assessment at hour 48

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<th>Assessment of Mortality Risk/Organ Failure</th>
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<td>No significant organ failure AND/OR</td>
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<tr>
<td>No significant requirement for lifesaving resources</td>
<td>Use alternative forms of medical intervention or defer or discharge</td>
</tr>
<tr>
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<td>Reassess as needed</td>
</tr>
<tr>
<td>SOFA ≤7</td>
<td>RED</td>
</tr>
<tr>
<td>OR</td>
<td>Highest</td>
</tr>
<tr>
<td>Single organ failure</td>
<td>Admission to Intensive Care Unit</td>
</tr>
<tr>
<td></td>
<td>Ventilator Allocation</td>
</tr>
<tr>
<td>SOFA 8-11</td>
<td>YELLOW</td>
</tr>
<tr>
<td></td>
<td>Intermediate</td>
</tr>
<tr>
<td></td>
<td>Admission to Intensive Care Unit</td>
</tr>
<tr>
<td></td>
<td>Ventilator Allocation</td>
</tr>
<tr>
<td>SOFA &gt;11 and/or Table 1 criteria</td>
<td>BLUE</td>
</tr>
<tr>
<td></td>
<td>Admission to Intensive Care Unit</td>
</tr>
<tr>
<td></td>
<td>Ventilator allocation</td>
</tr>
<tr>
<td>Assessment of Mortality Risk/Organ Failure</td>
<td>Color Code and Level of Access</td>
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<td>No significant requirement for lifesaving resources</td>
<td>Use alternative forms of medical intervention or defer or discharge</td>
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<tr>
<td>Reassess as needed</td>
<td></td>
</tr>
<tr>
<td>SOFA ≤7</td>
<td>RED</td>
</tr>
<tr>
<td>OR</td>
<td>Highest</td>
</tr>
<tr>
<td>Single organ failure</td>
<td>Admission to Intensive Care Unit Ventilator Allocation</td>
</tr>
<tr>
<td>SOFA 8-11</td>
<td>YELLOW</td>
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<tr>
<td>Intermediate</td>
<td>Admission to Intensive Care Unit Ventilator Allocation</td>
</tr>
<tr>
<td>SOFA &gt;11 and/or Table 1 criteria</td>
<td>BLUE</td>
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<tr>
<td>Admission to Intensive Care Unit</td>
<td>Ventilator allocation</td>
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### Table 4A: Phase II/III Assessment at hour (0)

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<td>No significant organ failure AND/OR</td>
<td>GREEN</td>
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<tr>
<td>No significant requirement for lifesaving resources</td>
<td>Use alternative forms of medical intervention or defer or discharge</td>
</tr>
<tr>
<td></td>
<td>Reassess as needed</td>
</tr>
<tr>
<td>SOFA ≤7 OR Single organ failure</td>
<td>RED</td>
</tr>
<tr>
<td></td>
<td>Highest Priority</td>
</tr>
<tr>
<td></td>
<td>ICU/use ventilators available</td>
</tr>
<tr>
<td>SOFA 8-11</td>
<td>YELLOW</td>
</tr>
<tr>
<td></td>
<td>Intermediate Priority</td>
</tr>
<tr>
<td></td>
<td>ICU/use ventilators as available</td>
</tr>
<tr>
<td>SOFA &gt;11 and/or Table 1 Criteria</td>
<td>Phase II</td>
</tr>
<tr>
<td></td>
<td>ICU/ventilators as available</td>
</tr>
<tr>
<td></td>
<td>Phase III</td>
</tr>
<tr>
<td></td>
<td>NO VENTILATOR PROVIDED</td>
</tr>
<tr>
<td></td>
<td>Use alternative forms of medical intervention, palliative care, Hospice referral</td>
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Table 4B: Phase II/III Assessment at hour 48

<table>
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<th>Assessment of Mortality Risk/Organ Failure</th>
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<td>GREEN Use alternative forms of medical intervention or defer or discharge Reassess as needed</td>
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<tr>
<td>SOFA ≤7 OR Single organ failure</td>
<td>RED Highest Priority ICU/use ventilators available</td>
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<td>SOFA ≤7 AND worsening or no improvement from 48 hours SOFA 8-11 AND no improvement from 48 hours</td>
<td>YELLOW Intermediate Priority ICU/use ventilators as available</td>
</tr>
<tr>
<td>SOFA &gt;11 and/or Table 1 Criteria</td>
<td>Phase II ICU/ventilators as available Phase III NO VENTILATOR PROVIDED Use alternative forms of medical intervention, palliative care, Hospice referral</td>
</tr>
<tr>
<td>Assessment of Mortality Risk/Organ Failure</td>
<td>Color Code and Level of Access</td>
</tr>
<tr>
<td>-----------------------------------------</td>
<td>--------------------------------</td>
</tr>
<tr>
<td>No significant organ failure</td>
<td><strong>GREEN</strong></td>
</tr>
<tr>
<td>AND/OR</td>
<td>Use alternative forms of medical intervention or defer or discharge</td>
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<tr>
<td>No significant requirement for lifesaving resources</td>
<td>Reassess as needed</td>
</tr>
<tr>
<td><strong>SOFA ≤7</strong></td>
<td><strong>RED</strong></td>
</tr>
<tr>
<td>OR</td>
<td>Highest Priority</td>
</tr>
<tr>
<td>Single organ failure</td>
<td>ICU/use ventilators available</td>
</tr>
<tr>
<td><strong>SOFA ≤7 AND worsening or no improvement from 48 hours</strong></td>
<td><strong>YELLOW</strong></td>
</tr>
<tr>
<td><strong>SOFA 8-11 AND no improvement from 48 hours</strong></td>
<td>Intermediate Priority</td>
</tr>
<tr>
<td></td>
<td>ICU/use ventilators as available</td>
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<tr>
<td><strong>SOFA &gt;11 and/or Table 1 Criteria</strong></td>
<td><strong>Phase II</strong></td>
</tr>
<tr>
<td></td>
<td>ICU/ventilators as available</td>
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<td></td>
<td><strong>Phase III</strong></td>
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<td></td>
<td>NO VENTILATOR PROVIDED</td>
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<td></td>
<td>Use alternative forms of medical intervention, palliative care, Hospice referral</td>
</tr>
</tbody>
</table>
Table 5: Phase II/III Criteria Determination for Ineligibility to Transfer for Limited Critical Care Resources

- POLST with a DNR and comfort focused treatment
- Current Hospice or Hospice eligible (Table 7)
- Cardiac Arrest:
  - Unwitnessed arrest
  - Recurrent arrest without hemodynamic stability
  - Arrest unresponsive to standard ACLS interventions within 20 minutes
- Irreversible hypotension unresponsive to fluid resuscitation and vasopressor therapy
- Persistent coma or vegetative state (Modified Rankin Score ≥ 5; Table 8)
- Known severe Dementia who meets Hospice eligibility criteria (Table 9 Figure 1 and 2)
- Acute severe neurologic event such intracranial hemorrhage or acute stroke with minimal chance of recovery (neurosurgeon or neurology assessment)
- Incurable adult metastatic malignant disease
- Severe acute trauma (Appendix A)
- Severe burns with minimal chance of survival. Coordinate with the burn center (Appendix B)
- SOFA score >11
Table 6A: Phase I Hospital and ICU/Ventilator Admission Triage Algorithm
Table 6B: Phase II/III Hospital and ICU/Ventilator Admission Triage Algorithm

Phase II/III Algorithm: Hospital and ICU/Ventilator Admission Triage

Patient Arrival and Initial Stabilization

- Rasses Daily to determine continued priority for hospitalization

Phase II/III

- SOFA Score

SOFA 0
- Green
  - Highest chance of survival without treatment
  - Defers or discharge to home with instructions
  - Rasses as needed

Discharge or Do Not Admit

SOFA < 7
- Red
  - Highest chance of survival with treatment
  - Highest Priority of hospital admission

Admit to Hospital

SOFA 8-11
- Yellow
  - Intermediate priority for hospital admission
  - For severe pandemic, highest priority for admission is given to patients triaged to red

SOFA > 11
- Blue
  - Lowest Chance of survival even with treatment

Admit to ICU

ICU Inclusion Criteria

NO
- Discharge from critical care. Use hospital admission triage to determine continuous need for hospitalization.

Admit to Floor

YES
- Remain daily. After 48 and 120 hrs. ICU care to determine continued priority for ICU/Ventilator

SOFa Score

SOFA 8-11
- Yellow

Still meet ICU inclusion criteria

SOFA ≤ 7
- Red
  - Highest chance of survival with treatment
  - Highest priority of hospital admission

Reference Phase II/III for allocation

1 or more in Table 1

SOFA > 11
- Blue
  - Lowest Chance of survival even with treatment

Reference Phase II/III for allocation

1 or more in Table 1
Phase II/III Criteria Determination for Ineligibility to Receive Limited Critical Care Resources

- POLST with a DNR and comfort focused treatment
- Current Hospice or Hospice eligible (Table 7)
- Cardiac Arrest:
  - Unwitnessed arrest
  - Recurrent arrest without hemodynamic stability
  - Arrest unresponsive to standard ACLS interventions within 20 minutes
- Irreversible hypotension unresponsive to fluid resuscitation and vasopressor therapy
- Persistent coma or vegetative state (Modified Rankin Score ≥ 5; Table 8)
- Known severe Dementia who meets Hospice eligibility criteria (Table 9 Figure 1 and 2)
- Acute severe neurologic event such intracranial hemorrhage or acute stroke with minimal chance of recovery (neurosurgeon or neurology assessment)
- Incurable adult metastatic malignant disease
- Severe acute trauma (Appendix A)
- Severe burns with minimal chance of survival. Coordinate with the burn center (Appendix B)
- SOFA score >11

Sequential Organ Failure Assessment

<table>
<thead>
<tr>
<th>SOFA score</th>
<th>0</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
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</thead>
<tbody>
<tr>
<td>Respirations</td>
<td>PaCO₂ &gt; 100</td>
<td>97-100</td>
<td>90-96</td>
<td>80-89</td>
<td>≤ 80</td>
</tr>
<tr>
<td>Hgb</td>
<td>10-12</td>
<td>10-12</td>
<td>10-12</td>
<td>10-12</td>
<td>≤ 10</td>
</tr>
<tr>
<td>SaO₂</td>
<td>90-96</td>
<td>90-96</td>
<td>90-96</td>
<td>90-96</td>
<td>≤ 90</td>
</tr>
<tr>
<td>Coa</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>3</td>
<td>≤ 3</td>
</tr>
<tr>
<td>Platelets</td>
<td>100-200</td>
<td>100-200</td>
<td>100-200</td>
<td>100-200</td>
<td>≤ 100</td>
</tr>
<tr>
<td>Blood glucose</td>
<td>80-120</td>
<td>80-120</td>
<td>80-120</td>
<td>80-120</td>
<td>≤ 120</td>
</tr>
<tr>
<td>Bilirubin</td>
<td>0.2-0.3</td>
<td>0.3-0.5</td>
<td>0.5-0.8</td>
<td>0.8-1.2</td>
<td>&gt; 1.2</td>
</tr>
<tr>
<td>Creatinine (mg/dL) or urine output (mL/h)</td>
<td>&lt;1.2</td>
<td>1.2-1.9</td>
<td>2.0-3.4</td>
<td>3.5-4.9 or &lt;500</td>
<td>&gt;5.0 or &lt;200</td>
</tr>
</tbody>
</table>

Triage Committee Assessment:

Date:
Time:
Triage Outcome:
Table 8: Medicare Hospice Eligibility Criteria (page 1 of 2)

### Functional Assessment Scale (FAST)

<table>
<thead>
<tr>
<th>S. No.</th>
<th>Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No difficulty either subjectively or objectively.</td>
</tr>
<tr>
<td>2</td>
<td>Complains of forgetting location of objects. Subjective work difficulties.</td>
</tr>
<tr>
<td>3</td>
<td>Decreased job functioning evident to co-workers. Difficulty in traveling to new locations. Decreased organizational capacity.*</td>
</tr>
<tr>
<td>4</td>
<td>Decreased ability to perform complex tasks, (e.g., planning dinner for guests, handling personal finances, such as writing checks, etc.)</td>
</tr>
<tr>
<td>5</td>
<td>Requires assistance in choosing proper clothing to wear for the day, season or occasion, (e.g., at times the patient wears the same clothing repeatedly, unless supervised).*</td>
</tr>
<tr>
<td>6</td>
<td>Occasionally or more frequently over the past weeks, * for the following:</td>
</tr>
<tr>
<td></td>
<td>Improperly putting on clothes without assistance or casing.</td>
</tr>
<tr>
<td></td>
<td>Unable to bathe property (not able to choose proper water temp)</td>
</tr>
<tr>
<td></td>
<td>Inability to handle mechanics of toileting (e.g., forget to flush the toilet, does not wipe properly or properly dispose of toilet tissue)</td>
</tr>
<tr>
<td></td>
<td>Urinary incontinence</td>
</tr>
<tr>
<td></td>
<td>Facial incontinence</td>
</tr>
</tbody>
</table>

*Certain criteria or information derived from a knowledgeable informant.

### Palliative Performance Scale (PPS)

<table>
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<tr>
<th>Function</th>
<th>0</th>
<th>10</th>
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<th>50</th>
<th>60</th>
<th>70</th>
<th>80</th>
<th>90</th>
<th>100</th>
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<tbody>
<tr>
<td>G. COUGH</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>S. COUGH</td>
<td></td>
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<td></td>
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<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>G. EAT</td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
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<td></td>
<td></td>
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</tr>
<tr>
<td>S. EAT</td>
<td></td>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>G. AUTO</td>
<td></td>
<td></td>
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<td></td>
</tr>
<tr>
<td>S. AUTO</td>
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<td></td>
<td></td>
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<td></td>
</tr>
</tbody>
</table>

### Hospice Card

A hospice is a program designed to care for the dying and their special needs. Among these services all hospice programs should include:

(a) Control of pain and other symptoms through medication, environmental adjustment and education.
(b) Psychological support for both the patient and family, including all phases from diagnosis through bereavement.
(c) Medical services commensurate with the needs of the patient.
(d) Interdisciplinary "team" approach to patient care, patient and family support, and education.
(e) Integration into existing facilities where possible.

Specialty trained personnel with expertise in care of the dying and their families.

### Hospice Eligibility Criteria

**GENERAL (NON-SPECIFIC) TERMINAL ILLNESS**

1. Terminal condition cannot be attributed to a single specific illness. And:
   2. Rapid decline over past 3-6 months evidenced by:
      - Progression of disease evidenced by sx, signs & test results
      - Decline in PPS to ≤ 50%
      - Involuntary weight loss > 10% and/or Albumin < 2.5 (helpful)

**ADULT FAILURE TO THRIVE**

Patient meets ALL of the following:

- Palliative performance Scale ≤ 40%
- BMI ≤ 22
- Pt refusing enteral or parenteral nutrition support or has not responded to such nutritional support, despite adequate caloric intake

**CANCER**

Patient meets ALL of the following:

1. Clinical findings of malignancy with widespread, aggressive or progressively increasing size or number of metastatic lesions evidenced by increasing size or number of metastatic lesions or metasis.
2. Palliative performance Scale (PPS) ≤ 70%
3. Requires further life-prolonging therapy OR continues to decline in spite of definitive therapy

Supporting documentation includes:

- Hypercalcemia ≥ 12
- Cachexia or weight loss of 5% in past 3 months
- Recurrent disease after surgery/radiation/chemotherapy
- Signs and sx of advanced disease (e.g., nausea, requirement for transfusions: malignant ascites or pleural effusion, etc.)

**DEMENTIA**

The patient has both 1 and 2:

1. Stage 7C or beyond according to the FAST Scale
2. One or more of the following conditions in the last 12 months:
   - Aspiration pneumonia
   - Pyelonephritis
   - Septicemia
   - Multiple pressure ulcers (stage 3-4)
   - Recurrent Fever

Other significant condition that suggests a limited prognosis:

- Inability to maintain sufficient fluid and calorie intake in the past 3 months (10% weight loss or albumin < 2.5 g/dL)
Table 8: Medicare Hospice Eligibility Criteria (page 2 of 2)

HEART DISEASE
The patient has 1 and either 2 or 3.
1. CHF with NYHA Class IV or both:
   - Significant sx at rest
   - Echocardiography
2. Patient is optimally treated
   - Diuretics, vasodilators
3. The patient has angina, at rest, resistant to standard therapy, and is not on a candidate for/against invasive procedures.
   - Supportive documentation includes:
     - EF ≤ 20%
     - Treatment resistant symptomatic dysrhythmias
     - H/o cardiac related syncope
     - CVA 2/3 cardiac embolism
     - H/o cardiac resuscitation
     - Concomitant HIV disease

HIV/AIDS
The patient has either 1A or 1B and 2 and 3.
1. CD4: < 25 cells/cu mm, OR 1B: Viral load: > 100,000
2. At least one (1):
   - CNS lymphoma, untreated or refractory
   - CD4< 0.25
   - Progressive multifocal leukoencephalopathy
   - Systemic lymphoma, visceral KS
   - Renal failure no HD
   - Cryptosporidium infection
   - Refractory toxoplasmosis
3. CD4< of < 50%

LIVER DISEASE
The patient has both 1 and 2.
1. End stage liver disease as demonstrated by A or B, C, D:
   - A: Portal 
   - B: INR > 1.5
   - C: Serum albumin < 2.5 g/dl
2. Two or more of the following conditions:
   - Refractory ascites
   - Spontaneous bacterial peritonitis
   - Hepatorenal syndrome
   - Refractory hepatic encephalopathy
   - Recurrent variceal bleeding
3. Supporting documentation includes:
   - Progressive malnutrition
   - Muscle wasting with decline
   - Frequent alcoholism (> 80 gm ethanol/day)
   - Hepatocellular Ca

PULMONARY DISEASE
Severe chronic lung disease as documented by 1, 2, and 3.
1. The patient has all of the following:
   - Cough
   - Wheezing
   - dyspnea
2. Progression of disease as evidenced by recent increased exertional dyspnea
   - Effort: cough
   - Sputum production
3. Documentation within past 3 months:
   - Hypoxemia at rest (PO2 < 55 mmHg by ABG)
   - Oxygen saturation < 88%
   - Tachypnea (18 br/min)
   - Pulmonary edema: 50 mmHg
   - Supportive documentation includes:
     - Unintentional progressive weight loss
     - Unintentional progressive weight loss

NEUROLOGIC DISEASE (chronic degenerative conditions such as ALS, Parkinson's, Muscular Dystrophy, Myasthenia Gravis or Multisite Ischemic)
The patient must meet at least one of the following criteria (1 < 2A or 2B):
1. Critical impaired breathing capacity with: of
   - Drowsiness at rest
   - Vital capacity < 20%
   - Need O2 at rest
   - Patient refuses artificial ventilation
   - OR
   - Reduced disease progression with either A or B below:
     - Progression from:
       - Loss of ambulation
       - Loss of stool control
       - Loss of bladder control
       - Loss of mental status
     - Depression
     - Anxiety
     - OR
     - Life-threatening complications in the past 12 months as documented by A or B:
       - Recurrent aspiration pneumonia
       - Pneumonia, Sepsis
     - Recurrent fever

RENXAL FAILURE
The patient has 1, 2, and 3.
1. The patient is not seeking dialysis or renal transplant
2. Creatinine clearance< is < 10 cc/min (< 15 for diabetes)
3. Serum creatinine > 3.0 mg/dl (> 6.0 mg/dl for diabetes)
   - Supporting documentation for chronic renal failure in:
     - Uremia
     - Oliguria (urine output < 400 cc in 24 hours)
     - Intractable hyperkalemia (> 7.0)
     - Uremic pericarditis
     - Hepatorenal syndrome
     - Intractable fluid overload
   - Supporting documentation for acute renal failure includes:
     - Mechanical ventilation
     - Malignancy (other organ system)
     - Chronic lung disease
     - Advanced cardiac disease
     - Advanced liver disease

STROKE OR COMA
The patient has both 1 and 2.
1. Poor functional status PP5< or 40 AND
2. Poor nutritional status with inability to maintain sufficient fluid and calorie intake with 1 of the followings:
   - > 10% weight loss in past 3 months
   - > 7.5% weight loss in past 3 months
   - Serum albumin < 2.5 g/dl
   - Current history of pulmonary aspiration without effective response to therapy interventions to improve dyspnea and decrease aspiration events
   - Supporting documentation includes:
     - Coma (any etiology) with 3 of the following on the third (3rd) day of coma:
       - Abnormal brain stem response
       - Absent verbal responses
       - Absent withdrawal response to pain
       - Serum creatinine > 1.5 g/dl
Table 9: Modified Rankin Scale

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>No symptoms at all</td>
</tr>
<tr>
<td>1</td>
<td>No significant disability despite symptoms; able to carry out all usual duties and activities</td>
</tr>
<tr>
<td>2</td>
<td>Slight disability; unable to carry out all previous activities, but able to look after own affairs without assistance</td>
</tr>
<tr>
<td>3</td>
<td>Moderate disability; requiring some help, but able to walk without assistance</td>
</tr>
<tr>
<td>4</td>
<td>Moderately severe disability; unable to walk without assistance and unable to attend to own bodily needs without assistance</td>
</tr>
<tr>
<td>5</td>
<td>Severe disability; bedridden, incontinent, and requiring constant nursing care and attention</td>
</tr>
<tr>
<td>6</td>
<td>Dead</td>
</tr>
</tbody>
</table>
Table 10: FAST (Figure 1) and Hospice Eligibility Criteria (Figure 2)

### Functional Assessment Scale (FAST)

<table>
<thead>
<tr>
<th></th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>No difficulty either subjectively or objectively.</td>
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<td>5</td>
<td>Requires assistance in choosing proper clothing to wear for the day, season or occasion, (e.g. pt may wear the same clothing repeatedly, unless supervised).*</td>
</tr>
<tr>
<td>6</td>
<td>Occasionally or more frequently over the past weeks. * for the following A) Improperly putting on clothes without assistance or cueing. B) Unable to bathe properly (not able to choose proper water temp) C) Inability to handle mechanics of toileting (e.g., forget to flush the toilet, does not wipe properly or properly dispose of toilet tissue) D) Urinary incontinence E) Fecal incontinence</td>
</tr>
<tr>
<td>7</td>
<td>A) Ability to speak limited to approximately ≤ 6 intelligible different words in the course of an average day or in the course of an intensive interview. B) Speech ability is limited to the use of a single intelligible word in an average day or in the course of an intensive interview C) Ambulatory ability is lost (cannot walk without personal assistance.) D) Cannot sit up without assistance (e.g., the individual will fall over if there are not lateral rests [arms] on the chair.) E) Loss of ability to smile. F) Loss of ability to hold up head independently.</td>
</tr>
</tbody>
</table>


---

### DEMENTIA

The patient has both 1 and 2:

1. Stage 7C or beyond according to the FAST Scale AND
2. One or more of the following conditions in the 12 months
   - Aspiration pneumonia
   - Pyelonephritis
   - Septicemia
   - Multiple pressure ulcers (stage 3-4)
   - Recurrent Fever
   - Other significant condition that suggests a limited prognosis
   - Inability to maintain sufficient fluid and calorie intake in the past 6 months (10% weight loss or albumin < 2.5 gm/dl)
# Crisis Standards of Care

## Transfer Guidelines Appendices

<table>
<thead>
<tr>
<th>Appendix</th>
<th>Category</th>
<th>Pages</th>
</tr>
</thead>
<tbody>
<tr>
<td>Appendix A</td>
<td>Trauma</td>
<td>Page 32-36</td>
</tr>
<tr>
<td>Appendix B</td>
<td>Acute Myocardial Infarction</td>
<td>Page 37-41</td>
</tr>
<tr>
<td>Appendix C</td>
<td>Stroke</td>
<td>Page 42-43</td>
</tr>
<tr>
<td>Appendix D</td>
<td>Additional Specialty Populations</td>
<td>Page 44-45</td>
</tr>
</tbody>
</table>
Appendix A

TRAUMA TRANSFER CRITERIA
General or Multisystem Trauma General Guidelines

Route call to Trauma Surgeon on Call—see standard work (Trauma Attachment 1)

Patients to remain at referring hospitals with general surgical capability:
- Isolated spleen or renal injury. This includes patients who might otherwise be candidates for angiography.
- Pubic rami fractures that are hemodynamically stable
- Patients with < 5 multiple rib fractures in hospitals with general surgical support
- Severe burn patients should be transferred directly to Burn centers. Manage marginal transfer candidates in house with consultation from the burn center.

Trauma Transfer Candidates:
- Complex pelvic fractures including acetabular, sacral vertical shear injury, open book-pubic diastasis
- Significant multisystem trauma (ISS>14)
- Severe Liver Injuries Grade 3 or higher especially with significant ACTIVE extravasation
- Trauma surgery must approve all transfers

Isolated Neurosurgical Trauma General Guidelines

Route call to Neurosurgery

Do not accept:
- GCS 3 Fixed/Dilated pupils
- Severe brain injury deemed fatal or care not beneficial after review of imaging by neurosurgery
- Stable compression fractures
- Non operative spine fractures

Candidates for transfer to [Acute Care Hospital] following neurosurgical review:
- Epidural hematoma
- Subdural Hematoma (severity of underlying brain injury and age are prognostic factors and should be considered prior to approving transfer)
- Severe TBI (consider prognosis)
- Unstable spine fractures without neurologic deficit
- Spine fractures with paralysis

Patient to remain at requesting hospital:
- Isolated subarachnoid hemorrhage
- Small intracerebral contusions with GCS > 13
Isolated Orthopedic Trauma General Guidelines

Hospitals with orthopedic support are encouraged to treat isolated femur and tibia fractures

Orthopedic Transfer Candidates:
- Complex open and closed tibia or femur fractures
- Fractures with neurovascular compromise

Isolated Facial Fracture Trauma General Guidelines

Transfers must be approved by the on call facial fracture surgeon.

Transfer Candidates:
- Displaced mandible fractures with difficulty swallowing or maintaining airway
- Intractable pain
- Compromised vision

All other facial fractures:
- Patients to remain at referring hospital
- Arrange outpatient follow up within 2 weeks

Burn Trauma General Guidelines

Do not accept burn patient transfers. All burn patients should be transferred directly to burn centers in Las Vegas, Salt Lake City or California.
# CSC Trauma Inter-facility Transfers (ED to ED, and IP to ED)

**Purpose:** To facilitate safe and timely transfers of trauma patients to Renown Acute Care Facilities.

<table>
<thead>
<tr>
<th>Step</th>
<th>Operator</th>
<th>Task Description</th>
<th>Tools</th>
</tr>
</thead>
</table>
| 1.   | TC RN    | Request received from outside facility to transfer a trauma patient to a Renown facility.  
• Complete Sections 1 and 2 of the Transfer Center (TC) Intake Form.  
• TC RN requests Sending Facility to push imaging immediately  
  - Isolated Brain or Spine Trauma → Page Neurohospitalist  
  - Multi-system, Pelvic Fractures, or Limb Threat → Page Trauma  
  * Refer Burn Patients to nearest burn center | Computer  
Phone  
TC Intake Form  
EPIC |
| 2.   | TC RN    | Complete Transfer Center Call Encounter | EPIC |
| 3.   | TC RN    | Tiger Text Neuro-hospitalist or Trauma using CSC Trauma Tiger Text Template Escalation Process – See attached | Phone |
| 4.   | TC RN    | Give MRN and ask film room to upload immediately | Phone |
| 5.   | TC RN    | Complete Section 3 of TC Intake Form. | TC Intake Form |
| 6.   | Surgeon  | Trauma Surgeon calls Transfer Center  
• Transfer Center contacts sending facility and establishes 3-way call on recorded line. | Phone |
| 7.   | TC RN    | If patient is not accepted for transfer:  
• Document Information in Transfer Center log. End of process. | Computer |
| 8.   | TC RN    | If patient is accepted for transfer:  
• Notify ERP of incoming patient.  
• Facilitate call with ERP and sending facility on recorded line. | Phone |
| 9.   | ERP      | ERP Receives information from sending facility and notifies the ED Charge RN of incoming transfer utilizing Blue Sheet | Phone and Blue Sheet |
| 10.  | ED Charge RN | Charge RN activates the trauma team using existing process | |

*Shown as an example for Renown Acute Care Facilities.*
<p>| | | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>11.</strong></td>
<td>TC RN</td>
<td>Upon acceptance complete Sections 4 and 5 of the TC Intake form</td>
</tr>
<tr>
<td><strong>12.</strong></td>
<td>TC RN</td>
<td>Update Transfer Log</td>
</tr>
</tbody>
</table>

Approval Date: April 2020

Author: Hospital Care Management Leadership

Reviewed by: Jennifer Crossley, Director of HCM and CDI

Next Review Date: April 2021
Appendix B

ACUTE MYOCARDIAL INFARCTION

CRITERIA FOR TRANSFER AND INTERVENTION CRITERIA
Acute Myocardial Infarction (AMI) Transfer Criteria: Decision Making Tools for Intervention

- Transfers must be approved by the cardiologist on call following normal operating process with Transfer Center
- Initiation of Transfer and/or Intervention will be guided by the AMI Decision Support Algorithm (Cardiology Attachment 1)
- Supporting Clinical Decision-making tools will also be used
  - Cardiology Attachment 2 Figures 1 and 2
  - Cardiology Attachment 3
Cardiology Attachment 1

AMC Decision Support

Exclusion Criteria

Acute Myocardial Infarction

None

Call the Cardiologist for Expert Consultation

Unfavorable resuscitation features and clinical judgement

Remain at Current Facility

YES

Determine Primary Problem

STEML Algorithm
Recommend thrombolytic

Does [Acute Care Hospital] have capacity?

YES

Transfer to [Acute Care Hospital]

Cardiology Attachment 2 (Figures 1 and 2)

ACS

High GRACE Score

Remain at Current Facility

Low or Intermediate GRACE Score

Remain at Current Facility

No

Remain at Facility

YES

Remain at Current Facility

Type 2

Treat the primary cause. No cardiac intervention
Figure 1 Tools to Aid Decision-Making in ACP – Robert M. Taylor MD

Medical condition
- Healthy patient with acute illness (e.g., trauma, myocardial infarction, surgery)
- Acute or chronic advanced illness: not immediately dying
- Imminently dying

Expected outcome
- 20%–40% survival: unpredictable risk of neurologic disability
- 1%–20% survival: high risk of neurologic disability
- 0% survival

Recommendation (physician's ethical responsibility)
- DNLI discussion unnecessary; consider advance care planning
- DNLI discussion essential; facilitative discussion regarding values, goals of care, quality of life
- DNLI discussion essential; provide information regarding natural death and recommended DNR and comfort care

Rationale
- Resuscitation likely to improve survival in otherwise healthy patient
- Resuscitation may be successful or lead to a poor outcome (e.g., continued suffering and/or neurologic disability)
- Cardiac arrest is the mechanism, not the cause; death is preventable

Follow-up
- Provide advance care planning and assess with completion of advance directives in case of future bad outcome
- Re-evaluation of DNR and advance care plans at regular intervals based on evaluation of patient's medical condition
- Palliative and supportive care to assist with anticipatory grief and physical, emotional, practical, and spiritual aspects of dying, bereavement care

Figure 2 Treatment Algorithm for Emergent Invasive Cardiac Procedure in the Resuscitated Comatose Patient

Out-of-hospital cardiac arrest (OHCA) patients who have achieved return of spontaneous circulation (ROSC), but remain comatose

Within 10 minutes of hospital arrival:
- Perform 12-lead electrocardiogram (ECG) to identify patients who benefit from emergent angiography
- Induce targeted temperature management (TTM) with mild therapeutic hypothermia (TH) to limit tissue injury following cardiac arrest

ST-segment elevation on the ECG
- Activate STEMI team; especially if multiple unfavorable resuscitation features are present

No ST segment elevation on the ECG
- "MCT" assess for unfavorable resuscitation features
- Consult with interventional cardiology & intensive care services
- Transport to cardiac catheterization/laboratory (CCL) (send a decision made to proceed with coronary angiography)

Patients: deemed suitable
- Emergency angiography
- Define coronary anatomy
- Identify coronary lesion
- Percutaneous coronary intervention (PCI)
- Left ventricular (LV) function and hemodynamic assessment
- Provide mechanical LV support if needed

Patients with multiple unfavorable resuscitation features
- Unrecognized arrest
- Initial rhythm: Non-VF
- X >180 min to ROSC
- On-pump CPR
- Resuscitative CPR
- Neurologic deficits (e.g., traumatic arrest)

Patients are less likely to benefit from coronary intervention (interventional/patient care and interventional cardiology consultation are strongly recommended

Please file as the latest entry in the medical records

**FORM 05**

<table>
<thead>
<tr>
<th>Participant Initials</th>
<th>Date of Birth</th>
<th>Date of Birth</th>
</tr>
</thead>
</table>

**Please complete for all participants in the intervention arm of the study**

**GRACE Risk score**

- **Step 1:**
  - Use the following tables to calculate participant's GRACE Risk Score and CRUSADE Bleeding Risk Score

**Notes on using scores:**
- Use hemodynamic characteristics at the time of presentation
- Killip Class I = Clear lung fields
- Killip Class II = Crepitations in lower zones
- Killip Class III = Crepitations in the upper zones
- Killip Class IV = Pulmonary oedema or cardiogenic shock
- ST deviation = ST elevation or depression >1 mm
- CCF: Congestive cardiac failure

**Date and time scores calculated**

<table>
<thead>
<tr>
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<th>Time</th>
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<tbody>
<tr>
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**Please enter 0 if not applicable**

**GRACE Risk category (Tick one)**

<table>
<thead>
<tr>
<th>Low (&lt;109)</th>
<th>Intermediate (109 – 140)</th>
<th>High (&gt;140)</th>
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**Completed by**

<table>
<thead>
<tr>
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<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>♦</td>
<td>♦</td>
</tr>
</tbody>
</table>
Appendix C

STROKE TRANSFER CRITERIA
All transfers must be approved by Neurohospitalist on call – see standard work below

CSC Stroke Inter-facility Transfers
(ED to ED, and IP to ED)

<table>
<thead>
<tr>
<th>Step</th>
<th>Operator</th>
<th>Task Description</th>
<th>Tools</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.</td>
<td>TC RN</td>
<td>Request received from outside facility to transfer a stroke patient to a Renown Regional.</td>
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<tr>
<td></td>
<td></td>
<td>• Complete Sections 1 and 2 of the Transfer Center (TC) Intake Form.</td>
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<td></td>
<td></td>
<td>• TC RN requests Sending Facility to push imaging immediately</td>
<td></td>
</tr>
<tr>
<td>2.</td>
<td>TC RN</td>
<td>Complete Transfer Center Call Encounter</td>
<td>EPIC</td>
</tr>
<tr>
<td>3.</td>
<td>TC RN</td>
<td>Tiger Text Neuro-hospitalist CSC Stroke Tiger Text Template</td>
<td>Phone</td>
</tr>
<tr>
<td>4.</td>
<td>TC RN</td>
<td>Contact Film Room and give MRN and ask film room to upload immediately</td>
<td>Phone</td>
</tr>
<tr>
<td>5.</td>
<td>TC RN</td>
<td>Complete Section 3 of TC Intake Form.</td>
<td>TC Intake Form</td>
</tr>
<tr>
<td>6.</td>
<td>MD</td>
<td>Neuro-hospitalist calls Transfer Center</td>
<td></td>
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<td></td>
<td></td>
<td>• Transfer Center contacts sending facility and establishes 3-way calling on recorded line.</td>
<td>Phone</td>
</tr>
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<td>7.</td>
<td>TC RN</td>
<td>If patient is not accepted for transfer to Renown Regional</td>
<td></td>
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<tr>
<td></td>
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<td>• Document Information in Transfer Center log. End of process.</td>
<td>Computer</td>
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<tr>
<td>8.</td>
<td>TC RN</td>
<td>If patient is accepted for transfer.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Notify ERP of incoming patient.</td>
<td></td>
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<tr>
<td></td>
<td></td>
<td>• Facilitate call with ERP and sending facility on recorded line.</td>
<td>Phone</td>
</tr>
<tr>
<td>9.</td>
<td>ERP</td>
<td>ERP Receives information from sending facility and notifies the ED Charge RN of incoming transfer utilizing Blue Sheet</td>
<td>Phone and Blue Sheet</td>
</tr>
<tr>
<td>10.</td>
<td>ED Charge RN</td>
<td>Charge RN activates the trauma team using existing process</td>
<td></td>
</tr>
<tr>
<td>11.</td>
<td>TC RN</td>
<td>Upon acceptance complete Sections 4 and 5 of the TC Intake form</td>
<td>TC Intake Form</td>
</tr>
<tr>
<td>12.</td>
<td>TC RN</td>
<td>Update Transfer Log</td>
<td>Computer</td>
</tr>
</tbody>
</table>

*Shown as an example for Renown Acute Care Facilities.*
Appendix D

ADDITIONAL SPECIALTY POPULATION TRANSFER

CRITERIA
MATERNA-L-CHILD CRITERIA

• No transfer exclusions - Follow standard operating process

PEDIATRIC CRITERIA

• No transfer exclusions - Follow standard operating process

*Shown as an example for Renown Health.
References

1. Nevada Crisis Standards Of Care (CSC) Plan: Nevada Division of Public and Behavioral Health (DPBH); 2020.