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# 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 among close contacts.

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.

## 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.

**Full CDC Preparedness Checklist:** Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States

### Dispatch Tactics

- Decline response to calls without evident potential threat to life (also requires medically trained dispatcher and dispatch protocol changes at the regulatory level)
- Place additional staff in Emergency Back-Up Communications Center (EBUCC) and regional Emergency Operations Center (EOC) (if available)
- Decline response to unknown problem/ unknown injury incidents until known illness/injury can be confirmed

### Response Tactics

- Utilize scheduled BLS providers to answer emergency calls
- Change staffing to one medical provider, one driver
- Further modify resource assignments as possible

### Patient Assessment and Treatment Tactics

- Assess patients and decline to transport those without significant injury/illness (according to guidance from EMS medical director)
- Provide alternative resources/ destination/transportation to definitive care dependent on the crisis occurring
- Treat and triage as appropriate given the circumstances and approved by the medical director as recommended by the State Disaster Medical Advisory Team

### Patient Transportation Tactics

- Continue to assess patients and decline to transport those without significant injury/illness (according to guidance from EMS medical director)
- Employ batch transports, as needed
- Request all available air resources (i.e., rotor, fixed wing, National Guard, Navy) for critical patients
- Transport will be based on triage guidelines and bed availability, as established based on the crisis
- Allow the combining of resources from different agencies (e.g., staff from one agency paired with equipment from another agency)

# 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.

**Full CDC Preparedness Checklist:** Preparedness Checklist for Nursing Homes and other Long-Term Care Settings

## 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).

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.

# 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). 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 preform 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

Maintaining appropriate staffing in healthcare facilities is essential to providing a safe work environment for HCP and safe patient care. 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, 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 a 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.<br><br>2. Behavioral health impact on the responder and healthcare provider community.<br><br>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. Common markers of potential mental health-related issues based on the child's age include:

- Refusal to return to school and clinging behavior;
- Persistent fears related to the catastrophe;
- Sleep disturbances persisting more than several days after the event, 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, and preoccupation with the events of the disaster.

### 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 PsySTART (Psychological Simple Triage and Rapid Treatment), 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

# Laboratory Testing

As COVID-19 laboratory testing capacity is improving in Nevada, and the state continues to prepare for incremental steps to ease social distancing measures, steps need to be taken to allow for more testing. Increasing the number of diagnostic COVID-19 RT-PCR laboratory testing is essential to early detect and isolate cases (patients with positive test results), and promptly identify and quarantine all contacts (individuals who were exposed to a COVID-19 case). It is essential to expand COVID-19 laboratory testing to include all patients exhibiting symptoms consistent with COVID-19 infection and ensure a more robust approach to rapid infection control and containment within our state.

## Testing Criteria for Symptomatic Persons

Clinicians should test patients that present with symptoms consistent with COVID-19. The Centers for Disease Control and Prevention (CDC) use the following clinical criteria:

- Persons with at least two of the following symptoms: fever (measured or subjective), chills, rigors, myalgia, headache, sore throat, new olfactory and taste disorder(s).

OR

- Persons with at least one of the following symptoms: cough, shortness of breath, or difficulty breathing

OR

- Severe respiratory illness with at least one of the following: clinical or radiographic evidence of pneumonia, or acute respiratory distress syndrome (ARDS).

AND

- No alternative more likely diagnoses

Persons meeting the above criteria should be considered for laboratory testing. RT-PCR testing is currently done at several Nevada commercial labs, hospital labs and the two Nevada public health laboratories. For additional information regarding sample collections and handling please review CDC recommendations at the following website: https://www.cdc.gov/coronavirus/2019-nCoV/lab/guidelines-clinicalspecimens.html

## Testing Expansion to Asymptomatic Persons

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 all of 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.

# 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 preforming 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 waving 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.

More information on hypercoagulability and COVID-19 is available from the American Society of Hematology and National Institutes of Health: Coronavirus Disease 2019 (COVID-19) Treatment Guidelines – Antithrombotic Therapy in Patients with COVID-19.

## 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).

For expanded guidance on the management of children with COVID-19 and associated complications, see Evaluation and Management Considerations for Neonates At Risk for COVID-19, Information for Pediatric Healthcare Providers, and the Surviving Sepsis Campaign International Guidelines for the Management of Septic Shock and Sepsis-Associated Organ Dysfunction in Children.

### 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.

## 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. 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)

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.

## 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, nasopharynx 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

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

## 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. 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.

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.

- 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.

- 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.
    - 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.
    - 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.

| Country | Performance Standard | Acceptable product classifications | Standards/Guidance Documents | Protection Factor ≥ 10 |
|---|---|---|---|---|
| Australia | AS/NZS 1716:2012 | P3<br>P2 | AS/NZS 1715:2009 | YES |
| Brazil | ABNT/NBR 13698:2011 | PFF3<br>PFF2 | Fundacentro CDU 614.894 | YES |
| China | GB 2626-2006 | KN 100 KP100<br>KN95 KP95 | GB/T 18664—2002 | YES |
| Europe | EN 149-2001 | FFP3<br>FFP2 | EN 529:2005 | YES |
| Japan | JMHLW-2000 | DS/DL3<br>DS/DL2 | JIS T8150: 2006 | YES |
| Korea | KMOEL-2017-64 | Special<br>1st | KOSHA GUIDE H-82-2015 | YES |
| Mexico | NOM-116-2009 | N100, P100, R100<br>N99, P99, R99<br><br>N95, P95, R95 | NOM-116 | YES |
| US NIOSH Requirements | NIOSH approved 42 CFR 84 | N100, P100, R100<br>N99, P99, R99<br>N95, P95, R95 | OSHA 29CFR1910.134 | YES |

## 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*

| HCP planned proximity to the case patient during encounter | Facemask or respirator determination | |
|---|---|---|
| | Patient masked for entire encounter (i.e., with source control) | Unmasked patient or mask needs to be removed for any period of time during the patient encounter |
| HCP will remain at greater than 6 feet from symptomatic patient | HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: no facemask or respirator | HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: no facemask or respirator |
| HCP will be within 3 to 6 feet of symptomatic patient | HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: facemask | HCP remaining at this distance from the patient should not need to enter the patient care area; if entry required: facemask |
| HCP will be within 3 feet of symptomatic patient, including providing direct patient care | Facemask | N95 respirator/ elastomeric /PAPR, based on availability |
| HCP will be present in the room during aerosol generating procedures performed on symptomatic persons | N95 respirator/ elastomeric /PAPR, based on availability | N95 respirator/ elastomeric /PAPR, based on availability |

*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

## 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*

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

### 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:

- Guidance for the Content of Premarket Submissions for Software Contained in Medical Devices
- Content of Premarket Submissions for Management of Cybersecurity in Medical Devices
- Radio Frequency Wireless Technology in Medical Devices
- Design Considerations and Pre-market Submission Recommendations for Interoperable Medical Devices

### 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 2*

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

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.

**Full FDA Guidance Document:** Enforcement Policy for Ventilators, Accessories, and Other Respiratory Devices During COVID-19 Public Health Emergency

# 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.
- 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

## 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:
    - Identifying and prioritizing essential and non-essential functions;
    - Identifying minimum staffing needs for essential facility operations;
    - Extending shift hours;
    - Cross-training current staff or hiring temporary staff; and
    - Collaborating with the local health department to identify facility space that could be adapted for use as an isolation area for symptomatic individuals.