Toolkit for COVID-19
Kansas Department of Health and Environment
February 28, 2020

Dear Kansas communities,

The Kansas Department of Health and Environment (KDHE) thanks you for your commitment to serving the public health needs of your community. KDHE recognizes that in the last six weeks, there has been a very fluid situation regarding the emergence of COVID-19 and we thank you for your diligence and work in addressing this rising issue.

The most important thing we can do as Kansans is to come together to plan. This means that starting at the local level, we need communities to continue or begin to meet with their public health, healthcare, pre-hospital, emergency management, behavioral health, childcare and educational organizations to discuss infectious disease planning activities, gaps and needs.

To aid in facilitating these discussions and to help provide some additional specifics related to the COVID-19 emergency, KDHE has prepared several related guidance documents to discuss within your community and drive some planning actions. It is important to remember that preparedness for infectious disease emergencies is not only a healthcare system or public health issue, it truly is a “whole of community” challenge with every sector and organization having a key role to play in reducing the likelihood of disease spread.

We will continue updating these documents as new information becomes available. We appreciate all of the work that you are doing for Kansans.

Sincerely,

Lee A. Norman, M.D.
Secretary and State Health Officer
Kansas Department of Health and Environment
Coronavirus Disease 2019 (COVID-19) Hospital Preparedness Assessment Tool

All U.S. hospitals should be prepared for the possible arrival of patients with Coronavirus Disease 2019 (COVID-19). All hospitals should ensure their staff are trained, equipped and capable of practices needed to:

- Prevent the spread of respiratory diseases including COVID-19 within the facility
- Promptly identify and isolate patients with possible COVID-19 and inform the correct facility staff and public health authorities
- Care for a limited number of patients with confirmed or suspected COVID-19 as part of routine operations
- Potentially care for a larger number of patients in the context of an escalating outbreak
- Monitor and manage any healthcare personnel that might be exposed to COVID-19
- Communicate effectively within the facility and plan for appropriate external communication related to COVID-19

The following checklist does not describe mandatory requirements or standards; rather, it highlights important areas for hospitals to review in preparation for potential arrivals of COVID-19 patients.

Coronavirus Disease 2019 (COVID-19) Hospital Preparedness Tool.pdf
Healthcare Professional Preparedness Checklist For Transport and Arrival of Patients Potentially Infected with COVID-19

February 12, 2020

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

- Stay up to date on the latest information about signs and symptoms, diagnostic testing, and case definitions for COVID-19.
- Review your infection prevention and control policies and CDC infection control recommendations for COVID-19 for:
  - Assessment and triage of patients with acute respiratory symptoms
  - Patient placement
  - Implementation of Standard, Contact, and Airborne Precautions, including the use of eye protection
  - Visitor management and exclusion
  - Source control measures for patients (e.g., put facemask on suspect patients)
  - Requirements for performing aerosol generating procedures
  - Be alert for patients who meet the persons under investigation (PUI) definition. For the most up to date definition please contact the KDHE Epidemiology Hotline at 1-877-427-7317
  - Report a potential COVID-19 case or exposure to facility infection control leads and KDHE at 1-877-427-7317
  - Know who, when, and how to seek evaluation by occupational health following an unprotected exposure (i.e., not wearing recommended PPE) to a suspected or confirmed nCoV patient
  - Remain at home, and notify occupational health services, if you are ill
  - Know how to contact and receive information from your state or local public health agency
Interim Cleaning Recommendations for Facilities Housing Persons Under Quarantine for Coronavirus Disease 2019 (COVID-19)

Updated March 2, 2020

Background

There is much to learn about the newly emerged coronavirus disease 2019 (COVID-19). Based on what is known about early cases of COVID-19, spread from person-to-person via the respiratory route and usually happens among close contacts (within about 6 feet).

People with certain types of exposure to cases of COVID-19 may be housed and quarantined for observation until 14 days after their exposure. The purpose of the observation period is to ensure they don’t develop symptoms and infect others during this time. Some people stay at home for the observation period, but others may be housed either separately or in groups in other types of facilities.

In these facilities, individuals and families are provided separate quarters with separate bathroom facilities. They are instructed that congregation and shared public spaces are to be avoided. Because the people under quarantine are not ill, the risk to cleaning staff is inherently low.

Purpose

This guidance provides recommendation on the cleaning and disinfection of rooms of persons under quarantine, as well as associated worker protection practices according to expected job tasks. The goal is to minimize interactions between persons under quarantine and cleaning staff. These recommendations will be updated if additional information becomes available.

General Recommendations for Housing Facilities for Persons Under Quarantine

- Employers should develop policies for worker protection and provide training to all cleaning staff on-site prior to beginning work. Training should include:
  - An understanding of when to use personal protective equipment (PPE)
  - What PPE is necessary and why (see below for PPE recommendations)
  - How to properly don (put on), use, and doff (take off) PPE
  - How to properly dispose of PPE
- Employers must ensure workers are trained on the hazards of the cleaning chemicals used in the workplace in accordance with OSHA’s Hazard Communication standard, 29 CFR 1910.1200.
• Employers must comply with OSHA’s standards on Bloodborne Pathogens (29 CFR 1910.1030), including proper disposal of regulated waste, and PPE (29 CFR 1910.132).

• Cleaning staff should perform hand hygiene often including immediately after removing PPE by washing hands with soap and water for 20 seconds. If soap and water are not available and hands are not visibly dirty, an alcohol-based hand sanitizer that contains 60%-95% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water.

• Cleaning staff should immediately report breaches in PPE (e.g., tear in gloves) or any potential exposures (e.g., contact with a quarantined individual without wearing appropriate PPE) to their supervisor.

• Employers should educate workers to recognize the symptoms of COVID-19 and provide instructions on what to do if they develop symptoms until 14 days after the last day they had possible exposure to the virus.
  o Cleaning staff should immediately notify their supervisor and the local health department if they develop symptoms of COVID-19. The health department will provide guidance on what actions need to be taken.

• Cleaning staff should follow normal preventive actions while at work and home including covering their mouth and nose with a tissue when coughing or sneezing and avoiding touching eyes, nose, or mouth with unwashed hands.

• If surfaces are dirty, they should be cleaned using a detergent and water prior to disinfection. A list of products with EPA-approved emerging viral pathogens claims, maintained by the American Chemistry Council Center for Biocide Chemistries (CBC), is available at: https://www.americanchemistry.com/Novel-Coronavirus-Fighting-Products-List.pdf.
  o Products with EPA-approved emerging viral pathogens claims are expected to be effective against COVID-19 based on data for harder to kill viruses.
  o Follow the manufacturer’s instructions for all cleaning and disinfection products (e.g., concentration, application method and contact time, PPE) for use.

**Cleaning Activities During the Quarantine Period**

Because cleaning needs are limited during the quarantine period, CDC is recommending that cleaning staff do not clean occupied rooms in quarantine facilities. Instead, all rooms should be provisioned with personal cleaning supplies, e.g., tissues, paper towels, cleaners and disinfectants that are EPA-approved against emerging viral pathogens (see list above) for use by persons under quarantine as needed. Rooms and common areas occupied by persons under quarantine should not be cleaned by cleaning staff until all persons under quarantine have been released from quarantine and have vacated the area and no sooner than 24 hours after rooms and common areas have been vacated.

During the quarantine:

• Persons under quarantine should bag trash and place the closed bag outside their door for daily pick up.

• Similarly, persons under quarantine should bag soiled linens and place the closed bag outside their door for pick up.
• Cleaning, laundry, and trash removal staff should wear disposable gloves and gowns for all tasks in the cleaning process, including collection of closed bags.
  o Staff should remove gloves after cleaning a room or area occupied by persons under quarantine before moving to the next room.
  o After delivering bags to their final destination, staff should clean and disinfect any hard, cleanable surfaces where bags have been stored (such as on carts or on the floor).
  o Laundry and trash removal staff collecting the closed bags should remove their gloves promptly after bags are delivered to their destination and cleaning and disinfection has been performed.
  o Any time staff remove gloves, they should perform hand hygiene immediately by washing their hands with soap and water for 20 seconds. If hands are not visibly dirty and soap and water are not available, an alcohol-based hand sanitizer that contains 60%-95% alcohol may be used. However, if hands are visibly dirty, always wash hands with soap and water.

• If possible, for fabrics or other materials that can be laundered, use the warm water setting and dry items completely on high heat.

• If a person under quarantine has a special need for assisted cleaning (e.g., an elderly person who is unable to clean a spill such as vomiting in their quarters), public health staff will oversee the cleaning process as part of their evaluation of the individual.

Cleaning a Room Vacated by a Person under Quarantine with COVID-19 (Enhanced Cleaning)

Rooms that housed a person under quarantine with COVID-19 should remain closed to further use until cleaned and disinfected by appropriately trained cleaning staff. The room should not be entered by cleaning staff for at least for 24 hours.

• Cleaning staff should wear disposable gloves and gowns for all tasks in the cleaning process.
  o These gloves and gowns should be compatible with the disinfectant products being used
  o Additional PPE might be required based on the cleaning/disinfectant products being used and whether there is a risk for splash.
  o Gloves and gowns should be removed carefully to avoid contamination of the wearer and the surrounding area.

• Cleaning should be undertaken using products with EPA-approved emerging viral pathogens claims (https://www.americanchemistry.com/Novel-Coronavirus-Fighting-Products-List.pdf)). All products should be used according to label instructions. o Clean the surface first, and then apply the disinfectant as instructed on the disinfectant manufacturer’s label. Ensure adequate contact time for effective disinfection.
  o Adhere to any safety precautions or other label recommendations as directed (e.g., allowing adequate ventilation in confined areas, proper disposal of unused product or used containers and donning appropriate PPE).
o Avoid using product application methods that cause splashing or generate aerosols.

o Cleaning activities should be supervised and inspected periodically to ensure correct procedures are followed.

o After cleaning and removal and disposal of gloves, staff should perform hand hygiene by washing hands often with soap and water for at least 20 seconds or using an alcohol-based hand sanitizer that contains 60 to 95% alcohol. Soap and water should be used if the hands are visibly soiled.

- Clean and disinfect all frequently touched surfaces in quarantine locations (e.g., counters, tabletops, doorknobs, light switches, bathroom fixtures, toilets, phones, keyboards, tablets, remotes and bedside tables) according to instructions described for products with EPA-approved emerging viral pathogens claims.

- For soft (porous) surfaces such as carpeted floor, rugs, and drapes, remove visible contamination if present. Launder items as appropriate in accordance with the manufacturer's instructions. Porous materials that will be laundered can be transported to the laundry facility in the usual manner. If possible, launder items using the warm water setting and dry items completely on high heat.

- When cleaning is completed, collect soiled material and PPE in a sturdy, leak-proof (e.g., plastic) bag that is tied shut and not reopened. This waste can go to the regular solid waste stream (e.g., municipal trash) as it is not biohazardous or regulated medical waste.

- If bulk material and spills containing blood or body substances are present, cleaning staff should use absorbent materials, such as towels, to remove the material. The area should then be cleaned and then disinfected with products with EPA-approved emerging viral pathogens claims used according to product label instructions.

- No additional cleaning is needed for supply and return ventilation registers or filtration systems for the building.

- No additional treatment of wastewater is needed before discharging to sanitary sewer.

Cleaning Recommendations for Quarantined Persons from Uncontrolled Sources (e.g. increased likelihood of many cases such as on cruise ships, etc.)

Cleaning for facilities housing persons under quarantine because of exposure from an uncontrolled source should be conducted following the Enhanced Cleaning procedures and include cleaning of common areas outlined above.

Cleaning a Room Vacated by persons under quarantine without COVID-19

After all persons under quarantine are released and assuming the quarantined persons are not from an uncontrolled source (see above):
• If all persons under quarantine have been released and vacated the housing area and no persons tested positive for COVID-19, the facility (e.g., rooms, common areas) should be cleaned according to standard procedures.

• No additional PPE is required beyond what is normally worn for regular housekeeping activities.

Cleaning of Common Areas of a Housing Facility (if used)

If common areas are used by persons under quarantine, those areas will require cleaning and disinfection during the quarantine period.

• Common areas of a facility should be cleaned on a daily basis, and as needed.

• Regardless of known COVID-19 status of persons under quarantine, common areas should be cleaned according to Cleaning a Room Vacated by a person under quarantine with COVID-19(Enhanced Cleaning) recommendations, since communication to cleaning staff about persons under quarantine who develop symptoms or test positive for COVID-19 may not be able to occur as quickly as cleaning services are required.

• No quarantined individuals should be present in a common area during cleaning. Common areas of a facility should be closed off to all persons except for cleaning staff before cleaning and disinfection activities take place.

Additional Resource:

OSHA COVID-19 Website:
https://www.osha.gov/SLTC/covid-19/
Interim Guidance for Child Care Facilities Licensed by the Kansas Department of Health and Environment (KDHE)

This interim guidance is based on what is currently known about the spread and severity of coronavirus disease 2019 (COVID-19). Currently, in the United States, the risk of COVID-19 for the general public is low. The Centers for Disease Control and Prevention (CDC) and KDHE will provide updated guidance as needed and as additional information becomes available. Please check the CDC website and the KDHE website periodically for updated guidance.

This guidance is intended primarily for child care facilities licensed by KDHE (day care homes, group day care homes, centers, preschools, school age and drop in programs). It includes planning and preparedness recommendations that licensees should take now to help prevent the spread of COVID-19 in the future. The guidance also suggests actions to consider if public health officials determine that COVID-19 is spreading in communities.

Although precautions are necessary to prevent the entry and spread of COVID-19 into communities, care should be taken to avoid stigmatizing individuals who may have been exposed to the virus. Child care facilities should continue to offer a welcoming, respectful, inclusive, and supportive environment for children and their families. Precautions taken by licensees should help prevent spread of COVID-19 while minimizing disruption and protecting children, families, and staff.

Planning and Preparedness Recommendations for Licensed Child Care Facilities

There are laboratory-confirmed cases of COVID-19 in the United States. As the global outbreak continues to evolve, child care facilities are encouraged to prepare for the possibility of community-level outbreaks. Child Care licensees should take the following actions to plan and prepare for COVID-19:

- Stay informed and know where to go from the most current information. Sources of accurate information include the CDC, KDHE and your local county health department.
  - Share the following CDC fact sheets and poster with families of children in care and staff:
    - What you need to know about coronavirus disease 2019
    - What the public should do to prevent spread of COVID-19 in the United States
    - Stop the spread of germs – help prevent the spread of respiratory viruses like COVID-19
  - Share the following CDC fact sheet with families of children in care and staff who recently traveled back to the United States from China:
    - Travelers from China arriving in the United States – health alert
• Work with your local child care licensing surveyor to develop or update
emergency preparedness plans to address possible disruptions in learning and
program operations.
  o Determine how to deal with high absentee rates among children and staff.
  o Identify critical functions and positions and plan for alternative coverage in
the event of staff absences or closure.
  o Identify methods to communicate with staff and parents in the event of
  closure.
• Review your policies for the exclusion of sick children and staff.
  o Make sure that parents of children in care and staff are aware and follow
the policies.
  o Encourage parents to plan now in the event their child becomes sick. Sick
children should not be taken to another child care program or other group
setting, even temporarily.
  o Develop flexible sick leave policies that encourage staff to stay home
when sick or when caring for sick family members.
• Review children’s files and update contact information.
• Make plans for the isolation and supervision of children until their parents can
pick them up.
• Implement monitoring systems to track children and staff absences.
  o Understand the usual absenteeism patterns for your facility.
  o Alert your local health department about large increases in absenteeism
due to respiratory illnesses.
• Follow existing procedures for reducing the spread of respiratory illnesses among
children and staff, including hand washing and cough etiquette (coughing and
sneezing into your elbow).

Recommendations for Child Care Facilities in Communities with Laboratory-
Confirmed Cases of COVID-19 Infection

In addition to the actions listed above, licensees in communities with laboratory-
confirmed COVID-19 cases may need to implement further actions in response to the
spread of the disease in their community.

• Licensees should plan now for the possibility of facility closures to help reduce
the further transmission of COVID-19 within facilities or the community. The
decision to temporarily close a facility, should be considered on a case by case
basis and in consultation with the local licensing surveyor and public health
officials.
  o Consider temporary closure of 14 days if a child in care or staff member
were present in the facility prior to being confirmed as a COVID-19 case.
  o Facilities located in a residence should temporarily close if the licensee or
someone else living in the residence becomes ill.
• When child care facilities are temporarily closed, children and staff should stay home; away from gatherings, crowds or other social settings.
• Identify strategies to support families in continuing their child’s learning in the event of facility closure.
• Understand that the length (duration), criteria, and public health objective of child care facility closures may be re-assessed and changed as a local outbreak situation evolves. Licensees should follow the advice of KDHE and local public health officials.

For More Information

CDC Resources
• Coronavirus Disease 2019 website
• Health Alert Network: Update and Interim Guidance on Outbreak of Coronavirus Disease 2019
• Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential Coronavirus Disease 2019 Exposure in Travel-associated or Community Settings
• About Coronavirus Disease 2019 (COVID-19)
• What to Do If You Are Sick with COVID-19pdf icon
• Interim Guidance for Persons Who May Have Coronavirus Disease 2019 (COVID-19) to Prevent Spread in Homes and Residential Communities
• Interim Guidance for Businesses and Employers to Plan and Respond to Coronavirus Disease 2019 (COVID-19), February 2020
• Coronavirus Disease 2019 Information for Travelers
• Do Your Part. Slow the Spread of Germspdf icon
• Don't Spread Germs at Workpdf icon
• Stay Home if You’re Sickpdf icon

Other Federal Agencies and Partners Resources
American Academy of Pediatrics (AAP)
• Hand Washing: A Powerful Antidote to Illness: https://www.healthychildren.org/English/health-issues/conditions/prevention/Pages/Hand-Washing-A-Powerful-Antidote-to-Illness.aspxexternal icon
• Reducing the Spread of Illness in Child Care: https://www.healthychildren.org/English/health-issues/conditions/prevention/Pages/Prevention-In-Child-Care-or-School.aspxexternal icon
• Germ Prevention Strategies: https://www.healthychildren.org/English/health-issues/conditions/prevention/Pages/Germ-Prevention-Strategies.aspxexternal icon
• When to Keep Your Child Home from Child Care: https://www.healthychildren.org/English/family-life/work-play/Pages/When-to-Keep-Your-Child-Home-from-Child-Care.aspxexternal icon
National Resource Center for Health and Safety In Child Care and Early Education

- Caring for Our Children National Health and Safety Performance Standards for Early Care and Education Programs: https://nrckids.org/CFOC
Interim Guidance for K-12 Schools and Pre-K Programs Operated by Schools

February 28, 2020

This interim guidance is based on what is currently known about the transmission and severity of coronavirus disease 2019 (COVID-19). Currently, in the United States, the risk of COVID-19 for the general public is low. The US Centers for Disease Control and Prevention (CDC) will update this guidance as needed and as additional information becomes available. Please check the CDC website and the Kansas Department of Health & Environment website periodically for updated interim guidance.

Although precautions are necessary to prevent the entry and spread of COVID-19 into US communities, care should be taken to avoid stigmatizing students and staff who may have been exposed to the virus. K-12 schools and Pre-K programs operated by schools offer a welcoming, respectful, inclusive, and supportive environment to all and should continue to do so. Measures taken by US K-12 schools and Pre-K programs should help prevent the entry and spread of COVID-19 by students and staff who may have been exposed to the virus while minimizing disruption and protecting students and staff from discrimination.

This interim guidance is intended primarily for administrators* of public and private K-12 schools and Pre-K programs operated by schools in the United States to help prevent the introduction of COVID-19 into their facilities. It recommends actions that school administrators should take now to help prevent the spread of COVID-19 among students and staff and to help maintain continuity of teaching and learning if there is community spread of COVID-19 in the future. This interim guidance also suggests strategies to consider if public health officials determine that COVID-19 is spreading in US communities and educational settings.

Planning and Preparedness Recommendations for All US Schools Nationwide

There are laboratory-confirmed cases of COVID-19 in the United States. As this global outbreak evolves, US communities, including schools, are encouraged to prepare for the possibility of community-level outbreaks in the United States. Administrators of K-12 schools and Pre-K programs nationwide should take the following actions to plan and prepare for COVID-19:

- Stay informed about COVID-19 through CDC and your state and local health departments.
  - Share the following CDC fact sheets and poster with students and staff:
    - What you need to know about coronavirus disease 2019
    - What the public should do to prevent spread of COVID-19 in the United States
Stop the spread of germs – help prevent the spread of respiratory viruses like COVID-19

- Share the following CDC fact sheet with students and staff who recently traveled back to the United States from China:
- **Travelers from China arriving in the United States – health alert**

- Collaborate with your local public organizations and boards of education to review, update, and implement emergency operations plans (EOPs), particularly for infectious disease outbreaks.
  - The US Department of Education has outlined a 6-step process for creating EOPs for K-12 schools (see [https://rems.ed.gov/K12GuideForDevelHQSchool.aspx](https://rems.ed.gov/K12GuideForDevelHQSchool.aspx)).
  - Develop flexible attendance and sick leave policies that encourage students and staff to stay home when sick or when caring for sick family members.
  - Discourage the use of perfect attendance awards and incentives.
  - Identify critical job functions and positions, and plan for alternative coverage by cross-training staff.
  - Implement school absenteeism monitoring systems to track student and staff absences.
  - Understand the usual absenteeism patterns at your school.
  - Alert your local health department about large increases in student and staff absenteeism due to respiratory illnesses.
  - Determine what level of absenteeism will disrupt continuity of teaching and learning.
  - Establish procedures for separating sick students and staff from those who are well and for sending sick students and staff home as soon as possible.

**Response Recommendations for Schools in US Jurisdictions with Laboratory Confirmed Cases of COVID-19 Infection**

In addition to taking the actions listed above, administrators of K-12 schools and Pre-K programs in US jurisdictions with laboratory-confirmed COVID-19 cases may need to implement the following activities in response to COVID-19 if there is community spread in the future. Administrators should develop plans for:
School dismissals**
Decisions to temporarily dismiss K-12 schools and Pre-K programs in the affected area should be considered on a school-by-school basis, and in consultation and coordination with school district officials and state and local health officials.

- Decisions to dismiss schools based on COVID-19 concerns should be discussed with KDHE and your local public health department.
- The length (duration), geographic scope, and public health objective of school dismissals may be reassessed and changed as the local outbreak situation evolves.
- When schools are dismissed, schools should:
  - Temporarily cancel extracurricular group activities and large events, such as after-school assemblies and pep rallies, field trips, and sporting events.
  - Discourage students and staff from gathering or socializing anywhere, like at a friend’s house, a favorite restaurant, or the local shopping mall.
  - Implement e-learning plans and distance learning options for continuity of education, to the extent possible.
  - Work with state and local health officials to ensure continuity of school children-directed supplemental feeding programs.
  - Meal Service during Unanticipated School

This is an interim document and when more information is received from the CDC and Kansas Department of Health and Environment more guidance will be provided at that time.

Definitions Used in this Guidance
*Administrators oversee the daily operations of K-12 schools and Pre-K programs. Administrators may include positions like school district superintendents, principals, and assistant principals.

Pre-K program means an early childhood program operated by a public or private school.

This interim document will be updated when credible and up-to-date guidance is provided by the CDC and KDHE.
For More Information

CDC Resources
- Coronavirus Disease 2019 website
- Children and Youth with Special Healthcare Needs in Emergencies
- Do Your Part. Slow the Spread of Germs
- Don’t Spread Germs at Work
- Stay Home if You’re Sick

Other Federal Agencies and Partners Resources
American Academy of Pediatrics (AAP) •
  Hand Washing: A Powerful Antidote to
  Illness: https://www.healthychildren.org/English/health-issues/conditions/prevention/Pages/Hand-Washing-A-Powerful-Antidote-toIllness.aspx
- Reducing the Spread of Illness in Child Care: https://www.healthychildren.org/English/health-issues/conditions/prevention/Pages/Prevention-In-Child-Care-or-School.aspx
- Germ Prevention Strategies: https://www.healthychildren.org/English/healthissues/conditions/prevention/Pages/Germ-Prevention-Strategies.aspx
- When to Keep Your Child Home from Child Care: https://www.healthychildren.org/English/family-life/work-play/Pages/When-toKeep-Your-Child-Home-from-Child-Care.aspx
Guidelines for the Use of  
Modified Health Care Protocols in Acute Care Hospitals  
During Public Health Emergencies

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Attribution

This report is based on the original work of an expert panel led by Gianfranco Pezzino, M.D., M.P.H. and Steven Q. Simpson, M.D.

Members of the panel are listed in Appendix A. The project was conducted in 2009-2010 by the Kansas Health Institute under contract with the Kansas Department of Health and Environment.
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BACKGROUND

For more than a half a century, laws of the State of Kansas have addressed issues of emergency preparedness for disasters. Most of those laws are codified in Article 9 of Chapter 48 of the Kansas Statutes Annotated. These laws provide for the declaration of state-wide disaster emergencies by the governor to declarations of local disaster emergencies by county commission chairs and mayors. The statutes address the duties of individuals during disaster emergencies, establishments of a mutual aid system, and the responsibilities of various political subdivisions to come to the assistance of others in the event of emergencies.

Through the Kansas Division of Emergency Management, under the authority of the Adjutant General, the state has established a state disaster emergency management plan that provides for the coordination of local, state, and federal emergency management activities. Described within the state disaster emergency management plan are the roles of medical facilities when a disaster occurs. Each medical facility is expected to have its own emergency management plan.

Disasters come in all shapes and sizes. A multi-vehicle collision on I-70 in western Kansas may present as a disaster for a small community hospital, whereas a similar event in an urban area of the state would not be considered so. A tornado destroying a town is clearly a disaster, and would likely activate the state’s emergency management plan, calling in assistance from neighboring communities not impacted by the storm and from state resources. Disaster planning requires that individual medical facilities, local governments, regional coalitions and state resources consider the wide continuum of disaster scenarios and develop a strategy for addressing them.

At the extreme end of the spectrum is the disaster, the circumstances of which are so dire that either because of the specific circumstances of the disaster or because of the breadth of the disaster, insufficient resources exist to address the medical and health care needs of all the victims and all other options for relief have been exhausted. This report is intended to serve as a resource for hospitals and other health care providers for planning related to provision of care under disaster or other emergency health circumstances resulting in reduced or scarce resources. Its recommendations are voluntary guidelines and are not intended to establish a standard of care. ¹

These guidelines describe principles and practices that health care providers, acute care hospitals, and communities in Kansas can utilize for planning for the provision of care in the event that

¹The recommendations contained in this report are not mandatory nor are they applicable in all instances. This document does not purport to be an official record pursuant to K.S.A. § 60-465, and no officer is authorized to attest to the accuracy of any copy, nor can the exception to hearsay of K.S.A. § 60-460(o) be applied.
resources become scarce during a disaster or public health emergency. The guidelines are the product of analysis conducted on behalf of the Kansas Department of Health and Environment (KDHE) by the Kansas Health Institute (KHI) and a panel of experts. In September 2009, KHI produced a report for KDHE that outlined possible general processes and ethical principles to apply when health care resources are scarce. The report also recommended that KDHE develop and distribute to providers guidelines that address potential lack of resource situations that may occur as a result of the influenza pandemic occurring at that time.

In response to the report, KDHE asked KHI to convene a group of medical experts to review and amend, as deemed necessary, four technical documents developed by other states that were identified as good references on the subject. In May, 2013, a re-analysis was undertaken by the KDHE’s Clinical Resource Network (CRN), which included review and consideration of the recent report regarding crisis standards of care issued by the Institute of Medicine in 2012. In July, 2013, the Institute of Medicine released a toolkit for crisis standards of care indicators and triggers, which was also considered as this document was being finalized.

It should be noted that this document is a jumping-off place for the discussion of how health care providers faced with a dire health crisis can and should respond to such possibilities. The guidelines presented in this document represent the result of the expert panel review and of comments received from health care professionals. (The names and affiliation of the members of the review panel are listed in Appendix A of this document.) Significant issues still remain to be discussed and resolved as the public health and medical community grapples with and attempts to plan for that unforeseen and possibly unimaginable situation. Nonetheless, it is important for health care leaders in the state to spearhead the discussion, consider the proposals of this report, and incorporate applicable recommendations into their local emergency management planning.

Since this document’s recommended guidelines are adapted from previous publications, the background information and detailed rationale for the guidelines have been considerably shortened since the review panel’s goal was to produce a concise list of recommendations that clinicians in Kansas could rapidly review and implement. Those interested in more background information and further justification of the guidelines can review the original source documents, which are listed below:

“Summary of Suggestions from the Task Force for Mass Critical Care Summit”, January 26−27, 2007, [http://www.chestjournal.org/content/133/5_suppl/1S.full.pdf+html.]


GENERAL PRINCIPLES

- These modified triage protocols of care should be considered an integral part of good planning for the regional sharing of resources and surge capacity. Health care providers must alert state and local officials when emergencies threaten to stretch resources beyond capacity. The activation of the modified triage protocols should occur only after a declaration of emergency and only after other specified means of procuring additional resources and expanding surge capacity have been exhausted.

- These triage protocols address primarily hospital triage and should be integrated into broader emergency response plans. For example, the adoption of these triage protocols could require that some patients be moved after triage to reference hospitals to receive life-saving treatment or out of acute care hospitals if they do not qualify for life-saving treatment. This and similar issues should be addressed in local and state emergency response plans.

- Hospitals should work within the framework of regional networks, i.e. the Kansas Preparedness Healthcare Coalitions that are already in place. Resource deficiency may be a local or regional problem and could be mitigated by carefully drafted mutual aid and sharing protocols. Regional networks could also play a vital role in assuring that the modified triage protocols can be implemented throughout the state, with small and large hospitals working together to assure a uniform process of triage and allocation of resources.

- Before these modified triage protocols are implemented, all key stakeholders should be aware of the specifics to ensure that there is sufficient clarity and consensus to implement them.

- Small hospitals may have difficulty adopting some of the modified triage protocols proposed in this document. The review panel discussed this issue and concluded that, while modified triage protocols that provide for the same solution for all may not be always easy to implement, they have the advantage of promoting a fairer and more uniform distribution of resources throughout the state. When applicable, specific differences in implementation between small and large hospitals and communities are addressed and discussed in the triage protocols. Additional adjustments may be necessary based on new experiences and evidence. Issues concerning small hospitals are discussed further in a special section of this document.

- Because the field of modified triage protocols of care is so new, and interventions have not been widely tested, the panel strongly recommends that all the triage protocols be labeled as “Interim Recommendations.” This will facilitate changing and updating the documents as new information becomes available.

- The panel recommends that KDHE issue the triage protocols as voluntary, not mandatory, guidelines.
SPECIAL ISSUES CONCERNING SMALL HOSPITALS

Small hospitals may have difficulty adopting some of the modified triage protocols proposed in this document. The review panel discussed this issue and tried to leave as much flexibility as possible in the triage protocols to account for local circumstances, while assuring a standardized approach to the use of scarce resources throughout the state. Modified triage protocols that provide for the same solution for all situations may not be easy to implement, but they promote a fairer and more uniform distribution of resources throughout the state. During the comment period, questions were raised about the feasibility of implementing the modified triage protocols in small hospitals, but no evidence surfaced suggesting that implementation in small hospitals would not be possible through careful planning and via the regional networks.

When small hospitals do not have the resources to triage or treat patients locally using the proposed modified triage protocols, we recommend that they work in close partnership with their referral institutions. It could be possible, for example, to appoint a triage officer in a large hospital who could conduct triage for patients admitted in a small hospital. The triage could be conducted remotely using teleconferences or, if necessary, telemedicine resources. It is important that triage decisions for critically ill patients occur at the local level, even if the decisions are made by a triage officer in a different institution. As one of the providers told us, “there is no sense in transferring patients who will be very low priority patients when they arrive at the referral center.” Some of these mechanisms of assisted remote triage may already be in place and used occasionally during localized emergencies.

Large hospitals should be ready to assist small hospitals with their triage needs, and to treat their patients and patients transferred from small hospitals using the same set of clinical priority criteria. In the absence of this uniform approach, it is likely that patients in rural areas and those closer to referral hospitals would be treated unequally, creating a situation of geographical disparity that would be in contrast with the principles of distributive justice endorsed in this document. Such a situation could also create uncontrolled movement of patients towards large hospitals, in the hope that they could be treated there, which would increase congestion in those institutions. To obviate such a one way flow of patients, it may be necessary for larger, referral facilities to send less critically ill patients, who are not requiring the specialized capabilities of the referral center, to the smaller hospitals for ongoing care and completion of hospitalization.

The adoption of clinical triage criteria specific to small hospitals also was examined. In particular, the use of a modified SOFA score that uses saturation of peripheral oxygen (SpO2) instead of partial pressure of oxygen in arterial blood (PaO2) was considered, since some hospitals do not
perform the Arterial Blood Gas analysis test (ABG) necessary to measure PaO₂. In the absence of convincing published evidence in support of the modified SOFA score the review panel decided to endorse the use of the unmodified SOFA criteria throughout the state. The panel recommends that hospitals review the requirements for the SOFA assessment and make provisions to assure that they have the capacity to perform the necessary laboratory tests.
APPENDIX A: EXPERT PANEL MEMBERS

Panel Chair: Steven Q. Simpson, M.D., Professor and Associate Division Director, Section Chief of Critical Care, Pulmonary & Critical Care Medicine, University of Kansas Medical Center, Kansas City, KS (for September 2013 revision)

Dennis Cooley, M.D., Pediatric Associates, Topeka, Kansas; Immediate Past President, Kansas Chapter of the American Academy of Pediatrics, Topeka, KS

Randall Fahrenholtz, M.D., Family Medicine, Tribune, KS

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Daniel R. Hinthorn, M.D., F.A.C.P., Professor and Division Director, Infectious Diseases, University of Kansas Medical Center, Kansas City, KS

D. Charles Hunt, M.P.H., State Epidemiologist, Director, Bureau of Epidemiology and Public Health Informatics, Kansas Department of Health & Environment, Topeka, KS

Mike Keller, Vice President of Operations/COO, Newton Medical Center, Newton, KS

Ron Marshall, Hospital Preparedness Project Director, Kansas Hospital Education and Research Foundation, Topeka, KS

Mike McNulty, C.H.E.P., Homeland Security Operations Director, Kansas Department of Health & Environment, Topeka, KS

Robert Moser, M.D., Secretary and State Health Officer, Kansas Department of Health & Environment, Topeka, KS

Gianfranco Pezzino, MD, MPH, Senior Fellow, Kansas Health Institute, Topeka, KS

David Preston, M.D., Professor Emeritus, University of Kansas Medical Center & Retired Division Chief of Nuclear Medicine, Prairie Village, KS

Kathleen Sandness, M.D., Internal Medicine, Pittsburg, KS

Acknowledgement: The members of the panel wish to thank Paul G. Marx, Esq., Associate Chief Counsel, Public Health Legal Group, Kansas Department of Health & Environment, Topeka, KS for his assistance with the review and drafting of this document.
EXPERT PANEL MEMBERS

Original Version of Modified Health Care Protocols
Originally Published by the Kansas Health Institute, November, 2009; Revised, August 2010

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APPENDIX B: INTERIM GUIDELINES FOR TERTIARY TRIAGE PROTOCOL FOR ALLOCATION OF SCARCE RESOURCES IN ACUTE CARE HOSPITALS IN KANSAS

I. GOAL

1. KDHE recommends that this protocol be used by hospitals throughout Kansas in their emergency planning to ensure that patients have equitable access to life-saving resources when the demand for these resources is greater than the supply, and when use of resources must be optimized.

2. The application of these guidelines in small hospitals may not be feasible due to the lack of specialized staff. In these cases, hospitals may consider modifying the implementation of these guidelines to fit their situation while preserving the overarching goal of assuring an objective, clinical set of criteria for the allocation of scarce resources. Small hospitals should also consider partnering with larger referral centers and delegate some functions described in this document to those centers. Communication between small and large hospitals can take place using the best and most appropriate means, such as telephone, radio, telemedicine, or face-to-face consultation.

3. While the protocol refers primarily to pandemic influenza, it is applicable to other public health emergencies that may cause a prolonged shortage of life-saving resources, such as chemical disasters, tornado or other weather-induced disasters, or acts of terrorism.

II. INITIATION OF THE TRIAGE PROTOCOL

1. Generally, the hospital medical director, in consultation with the hospital administrator, will apply the protocol throughout an affected hospital at his or her discretion. The medical director will take into consideration local or regional declarations of emergency (e.g., state-wide declaration of emergency by the governor).

2. Hospital medical directors must assure that the protocol is applied consistently and fairly whenever and wherever it is initiated.

3. Application of the triage protocols will take place only when augmentation efforts have been exhausted and demand for the life-saving resource exceeds supply. Triggers include (but are not limited to):

   a. Local or state declaration of emergency.

   b. Initiation of national disaster medical system and national mutual aid and resource management.

   c. Surge capacity fully employed within health care facility

   d. Attempts at conservation, reutilization, adaptation, and substitution are performed maximally

2 Last revised: August 9, 2010
e. Identification of critically limited resources (ventilators, antibiotics)

f. Request for resources and infrastructure made to local and state health officials

g. Current attempt at regional, state, and federal level for resource or infrastructure allocation

4. The hospital medical director should rescind the application of the triage protocol when the supply of the life-saving resource is sufficient to meet the demand. This may occur either before or after a declared state of emergency has been rescinded.

III. RESPONSIBILITY STRUCTURE FOR TRIAGE DECISION MAKING

1. Scarce Resource Allocation Team:

a. The scarce resource allocation team should be a functional team under existing Incident Command System (ICS)/Hospital Incident Command System (HICS)/Emergency Operations — it should not be a separate structure.

b. The size and composition of the allocation team will vary depending on local circumstances, the nature of the emergency, and the size of the institution. Members may include (but not be limited to) critical care physicians, critical care nurses, respiratory therapists, pharmacists, human resource managers, hospital administrators and legal counsel.

c. The scarce resource allocation team will:

i. Acquire the information necessary to facilitate and oversee informed and ethical triage and scarce resource allocation decisions. Information could include resources (bed census, staffing, projected needs for care, existing medical resources, resource gaps, and projected availability of life-saving and hospice and palliative care resources) and guidelines for the management of the emergency (e.g., up-to-date treatment options and prognostic factors).

ii. As part of Incident Command System (ICS)/Hospital Incident Command System (HICS)/Emergency Operations, make judgments in collaboration with health care organization leaders and staff to implement appropriate alternative standard protocols of care that address the special demands that an emergency imposes on the health care organization or demands that could imminently be expected.

iii. Meet often, at least daily, during an emergency.

iv. Advise and assist, as required, and make definitive decisions, if necessary, to resolve uncertainties and disputes that affect the health care organization’s capacity to carry out its mission during a public health emergency.

v. Be involved in the real-time appeals process regarding triage decisions described in this document (excluding decisions made by members of the triage team which should not be subject to appeal).

vi. Prepare information briefs to the chief executive officer, chief of staff or designee(s) about the emergency’s status and the health care organization’s response so that the
information may be communicated to appropriate staff and stakeholders.

2. Triage Officer:
   
a. The triage officer must be a qualified member of the medical staff who is, ideally, experienced and trained in intensive care and triage protocols.

b. The triage officer will assess all patients, assign a level of priority for each, and direct attention to the highest-priority patients.

c. The triage officer, with the assistance of the triage team (when available), will:
   
i. Review all patients for inclusion and exclusion criteria, and facilitate discharge from critical care for patients no longer requiring it.
   
ii. At least every 24 hours, evaluate all patients receiving critical care.
   
iii. Evaluate all patients that have been recommended to receive critical care.

d. The triage officer is not expected to examine patients, except under circumstances in which examination may be crucial in reaching a triage decision.

e. The triage officer should not be involved in day to day care of the patients subjected to triage. Small hospitals unable to maintain this separation of roles should use a triage officer based in another institution. Such individuals may be identified by reference to the Regional Healthcare Coalition documents. Each hospital should pre-identify potential individuals for off-site triage for use in the event of disaster circumstances.

f. The triage officer will make triage decisions based on the allocation protocol, assigning patients to triage categories based on a SOFA score or exclusion criteria (Tables 2 and 3), and on available resources.

3. Triage Team:

a. In hospitals with sufficient staff resources, a triage team will be set up as a subcommittee of the scarce resource allocation team.

b. The role of the triage team is to provide information to the triage officer and help facilitate and support his or her decision-making process.

c. Members of the triage team may include (but not be limited to) an experienced critical care nurse, respiratory therapist, or clinical pharmacist. A representative from hospital administration may also be a part of the team to help organize resources and serve as a liaison to hospital leadership.

d. In larger facilities, it may be necessary to have more than one triage officer and team, with each officer/team assigned to a designated ICU or hospital area and to specific operational periods or shifts. In such circumstances, triage personnel should designate time for mutual review and transition of ongoing triage issues. It is recommended that the triage officer and team members function in shifts lasting no longer than 12 to 16 hours, if feasible.
e. The triage officer and triage team will:

i. Meet often (at least daily) to assess all patients who have clinical indications to receive scarce life-saving resources (e.g., critical care patients who require ventilators or hemodynamic support) and evaluate exclusion and inclusion criteria to determine the appropriateness of the initiation and continuation of scarce life-saving treatment.

ii. Develop and maintain a record of triage decisions including the data upon which the decisions were based.

f. Decisions from the triage team/triage officer cannot be appealed.

4. Review Committee:

a. In hospitals with sufficient staff resources, a review committee will be created to review the decisions of the triage team.

b. The review committee (ideally a small group of no more than three individuals) may be composed of experienced professionals who typically no longer provide direct care, such as the chief nursing officer, chief medical officer, chief respiratory therapy supervisor, infection control director, or legal counsel.

c. The review committee will bring to the attention of the triage officer any concerns about the application of the triage algorithm so that the triage officer may reflect on these concerns when approaching future decisions.

d. The review committee does not have the authority to change a decision made by the triage officer, except when there is clear evidence that the triage protocol was not applied as planned.

5. Treating Clinicians:

a. Should not have the responsibility of deciding whether to institute or remove a patient from life-saving resources. This decision is up to the triage team/triage officer. These functions should be kept separated to reduce the emotional impact of these decisions on health care providers.

b. Will implement a treatment plan consistent with the triage team’s decision regarding patient triage category.

c. Will conduct a DNR discussion with patients who do not qualify under the triage protocol for scarce life-saving resources.

d. Will offer palliative and other appropriate care.

6. Emergency Physicians:

a. Because many patients will seek care at the emergency department during pandemic influenza, emergency department personnel should be prepared to apply the “initial assessment tool” (See Table 3) for patients who have clinical indications for critical
b. Emergency physicians will:

i. Apply initial resuscitation, if applicable, with simple measures such as fluids oxygen by nasal cannula, mask, and control of bleeding, etc. (unless other exclusion criteria are present).

ii. Report initial assessment to the triage team.

IV. ALLOCATION CRITERIA

1. The overarching criterion is the degree of medical success or survivability determined by the application of established, objective clinical criteria, including SOFA scores. The guiding question of this assessment is whether the patient is likely to survive with the use of the scarce resource.

2. Once a determination has been made that a patient qualifies for the resource under the SOFA score, and a patient’s priority category has been determined, within-category priority will be established on a first-come, first-served basis or on a random selection/lottery basis, depending on feasibility of implementation.

   a. This second step will be implemented only if resources are still insufficient to meet the needs of all who qualify for the resource, after applying the clinical allocation criteria.

3. Clinical Assessment

   a. Clinicians will thoroughly assess all patients who present for care.

   b. Patients with clinical indications for scarce life-saving resources (e.g., critical care patients who require ventilators or hemodynamic support) will be subject to the triage protocol described in this document, unless they elect not to be candidates for critical care.3

4. Exclusion Criteria

   a. Patients with clinical indications for scarce life-saving resources will be assessed for exclusion criteria to determine the appropriateness of the initiation or continuation of scarce life-saving treatment.

   b. Exclusion criteria are intended to identify and exclude patients with a short life expectancy irrespective of the current acute illness. If an exclusion criterion is present (Table 1), the patient is no longer a candidate for scarce life-saving resources, including scarce resources that may be needed for cardiopulmonary resuscitation.

   c. Clinicians should offer palliative and other supportive care to the patient and follow clinical standards for withdrawal of scarce life-saving resources.

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3 The triage of patients with a Do Not Resuscitate (DNR) order or other advance directives should take into account the patient’s wishes and the likelihood of recovery after life-sustaining measures are applied.
V. RE-ASSESSMENT

1. Continued use of the scarce life-saving resources will be reviewed on an established schedule by the triage team (at least once every 24 hours). Patients that continue to meet criteria for inclusion will receive the resources until they either meet an exclusion criterion, or they are re-assessed according to the triage team schedule.

   a. Patients assigned to the same category will be allocated resources on a first-come, first-served basis or on a random selection/lottery basis, depending on the feasibility of implementation.

   b. Those that no longer meet the criteria after re-assessment will no longer be eligible for access to the scarce life-saving resources and should be informed of the need for withdrawal of these treatments.

VI. SPECIAL CONSIDERATIONS FOR VENTILATORS

1. Allocation of ventilators during a public health emergency will be subject to the same procedures described in this document for other scarce resources. Since ventilators are often an important life-saving resource, this section reviews some special issues related to ventilator allocation. For more details please refer to the following document, from which many of these guidelines have been abstracted:


2. Uniform policies are crucial; variations among facilities will lead to inequities. Equitable rationing systems, particularly ones that contemplate limiting access to lifesaving treatment, must assure that the same resources are available and in use at similarly situated facilities, i.e., all facilities in one city gripped by the pandemic or other disaster.

3. The establishment of regional stockpiles should be strongly considered, following the example in New York and other states. Leaders of facilities within a region should be encouraged to work out voluntary plans for loans of equipment and staff in a crisis.

4. As a public health emergency spreads, hospitals should limit the non-critical use of ventilators. Elective procedures that may require the use of ventilators should be canceled or postponed during the period of emergency. For an emergency that stretches from days to weeks, such as a pandemic, facilities will need a review system for procedures that decrease morbidity or mortality, but are not of an emergency nature.

5. The ideal interval for re-assessing patients in need of critical care and ventilators has not been well defined. Critical care experts point out that many patients will not show signs of improvement for several days after they start receiving intensive care resources such as ventilators; therefore a re-assessment schedule should allow for sufficient time to pass from when a patient first receives the resources, so that clinical improvement can become evident. Other experts point out that the greatest impact on survival is often made by aggressive action in the first hours of presentation, and a reassessment schedule that is conducted using long intervals may not identify early enough patients who fail to improve (and whose critical care resources should therefore be re-allocated). These are
factors that should be kept in mind when determining a re-assessment schedule. The decision should be based on the clinical characteristics of the emergency and on how acute the need for the re-allocation of resources is. The expert panel believes that hospitals should reassess this allocation every 24 hours.

6. Distinctions should be maintained between acute and chronic care facilities once triage begins, permitting chronic care facilities to maintain their specific mission. Patients using ventilators in chronic care facilities would not be subjected to acute care triage guidelines. If, however, such patients required transfer to an acute care facility, they would be assessed by the same criteria as all other patients, and might fail to meet criteria for continued ventilator use. Chronically ill patients will be vulnerable to the pandemic; chronic care facilities will have to provide more intensive care on site as part of the general process of expanding care beyond standard locations. Barriers to transfer are appropriate and likely during a phase in which acute care hospitals are overwhelmed.

7. Children in need of ventilators present unique challenges.

a. In general, triage using SOFA scores should not be used for children (especially young ones), because the SOFA system has not been adequately tested in children.

b. The use of the modified system described in Appendix C of this document (Interim Guidelines for the Use of Pediatric Ventilators During a Public Health Emergency in Kansas) is recommended as an alternative to the SOFA triage system for children.

c. Special expertise, likely to be in short supply, is needed to care for children who may also be especially vulnerable to morbidity and mortality in a pandemic. The establishment of centers of excellence for pediatric patients, particularly during a pandemic, should be considered. Although a pandemic emergency is likely to affect most or all of the state, the required expertise will not be widely distributed and an attempt to concentrate severely ill children needing intensive care in specialized centers may make sense, if feasible. Transportation of pediatric patients to the referral centers may be problematic in the middle of a statewide emergency, when the emergency medical system could be under considerable pressure.

d. Planning assumptions must adequately reflect the needs of infants and children. Many modern ventilators accommodate patients weighing as little as 10 kilograms, but will not support infants.
Table 1. Exclusion Criteria

<table>
<thead>
<tr>
<th>Exclusion Criteria</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Severe, advanced chronic disease with a short life expectancy (6 months or less)</strong></td>
</tr>
<tr>
<td><strong>Severe burns on patient with any two of the following:</strong></td>
</tr>
<tr>
<td>Age &gt; 60 yr</td>
</tr>
<tr>
<td>40% of total body surface area affected</td>
</tr>
<tr>
<td>Inhalational injury</td>
</tr>
<tr>
<td><strong>Cardiac arrest:</strong></td>
</tr>
<tr>
<td>Un-witnessed cardiac arrest</td>
</tr>
<tr>
<td>Witnessed cardiac arrest, not responsive to electrical therapy (defibrillation or pacing)</td>
</tr>
<tr>
<td>Recurrent cardiac arrest or trauma-related arrest</td>
</tr>
<tr>
<td><strong>Advanced untreated neuromuscular disease</strong></td>
</tr>
<tr>
<td><strong>Metastatic malignant disease with poor prognosis</strong></td>
</tr>
<tr>
<td><strong>End-stage organ failure (except when caused by readily reversible volume overload or hypoventilation due to an exogenous agent, such as narcotic, benzodiazepine, or other procedural sedative):</strong></td>
</tr>
<tr>
<td>Cardiac: NY Heart Association class III or IV</td>
</tr>
<tr>
<td>Pulmonary: severe chronic lung disease with FEV1** &lt; 25%</td>
</tr>
<tr>
<td>Hepatic: MELD*** score &gt; 20</td>
</tr>
<tr>
<td>Renal: dialysis dependent</td>
</tr>
<tr>
<td>Neurologic: severe, irreversible neurologic event/condition with high expected mortality</td>
</tr>
</tbody>
</table>

**Cardiac: NY Heart Association class III or IV**
- Pulmonary: severe chronic lung disease with FEV1** < 25%
- Hepatic: MELD*** score > 20
- Renal: dialysis dependent
- Neurologic: severe, irreversible neurologic event/condition with high expected mortality
**Table 2. Sequential Organ Failure Assessment (SOFA) Score**

<table>
<thead>
<tr>
<th>Variable</th>
<th>SOFA Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>0</td>
</tr>
<tr>
<td>PaO2/FiO2 mmHg</td>
<td>&gt; 400</td>
</tr>
<tr>
<td>Platelets, x 103/μL or x 106/L</td>
<td>&gt; 150</td>
</tr>
<tr>
<td>Bilirubin, mg/dL (μmol/L)</td>
<td>&lt;1.2 (&lt;20)</td>
</tr>
<tr>
<td>Hypotension</td>
<td>None</td>
</tr>
<tr>
<td>Glasgow Coma Score</td>
<td>15</td>
</tr>
<tr>
<td>Creatinine, mg/dL (μmol/L)</td>
<td>&lt; 1.2 (&lt;106)</td>
</tr>
</tbody>
</table>

Note: Clinicians will determine the total SOFA score for each patient by summing the scores for each variable. Dopamine [Dop], epinephrine [Epi], norepinephrine [Norepi] doses in ug/kg/min. SI units are noted in parentheses ( ).

*Adapted from: Ferreira et al., 2001. Explanation of variables: PaO2/FiO2 indicates the level of oxygen in the patient’s blood. Platelets are a critical component of blood clotting. Bilirubin is measured by a blood test and indicates liver function. Hypotension indicates low blood pressure; scores of 2, 3, and 4 indicate that blood pressure must be maintained by the use of powerful medications that require ICU monitoring, including dopamine, epinephrine, and norepinephrine. The Glasgow coma score is a standardized measure that indicates neurologic function; low score indicates poorer function. Creatinine is measured by a blood test and indicates kidney function.

Table 3. Life-Saving Resources Triage Tool for INITIAL ASSESSMENT

<table>
<thead>
<tr>
<th>Initial Criteria</th>
<th>Priority</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusion Criteria</td>
<td>None</td>
<td>Do not use life-saving resources</td>
</tr>
<tr>
<td><strong>OR</strong></td>
<td></td>
<td>Use other resources including palliative measures</td>
</tr>
<tr>
<td>SOFA &gt; 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOFA &lt; 7</td>
<td>Highest</td>
<td>Use life-saving resources, as available</td>
</tr>
<tr>
<td><strong>OR</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Organ Failure</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOFA 8–11</td>
<td>Intermediate</td>
<td>Use life-saving resources, as available</td>
</tr>
<tr>
<td>No requirement for life-saving</td>
<td>None</td>
<td>Use other medical management</td>
</tr>
<tr>
<td>resources</td>
<td></td>
<td>Re-assess as needed</td>
</tr>
</tbody>
</table>


Table 4: Life-Saving Resources Triage Tool for 48-HOUR RE-ASSESSMENT*

<table>
<thead>
<tr>
<th>48 Hour Criteria</th>
<th>Priority</th>
<th>Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exclusion Criteria</td>
<td>None</td>
<td>Discontinue life-saving resources</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td>Use other resources including palliative measures</td>
</tr>
<tr>
<td>SOFA &gt; 11</td>
<td></td>
<td></td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOFA 8 – 11 and increasing since last assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOFA &lt; 11 and decreasing since last assessment</td>
<td>Highest</td>
<td>Continue life-saving resources, as available</td>
</tr>
<tr>
<td>SOFA &lt; 11 and unchanged since last assessment</td>
<td>Intermediate</td>
<td>Continue life-saving resources, as available</td>
</tr>
<tr>
<td>OR</td>
<td></td>
<td></td>
</tr>
<tr>
<td>SOFA &lt; 8 and increasing since last assessment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>No longer requiring life-saving resources</td>
<td>None</td>
<td>Discontinue life-saving resources. Re-assess as needed</td>
</tr>
</tbody>
</table>

* Re-assessment should be conducted on a predetermined scheduled, at least every 24 hours.
<table>
<thead>
<tr>
<th>Organ System</th>
<th>Variable</th>
<th>Maximum System Score</th>
</tr>
</thead>
<tbody>
<tr>
<td>Neurologic</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
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<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Cardiavascular</td>
<td></td>
<td>20</td>
</tr>
<tr>
<td></td>
<td></td>
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<tr>
<td></td>
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<td></td>
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<td></td>
</tr>
<tr>
<td>Renal</td>
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<td>10</td>
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<td></td>
<td></td>
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<tr>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulmonary</td>
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<td></td>
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<tr>
<td></td>
<td></td>
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</tr>
<tr>
<td>Hematologic</td>
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<td>10</td>
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<tr>
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<td></td>
<td></td>
</tr>
<tr>
<td>Hepatic</td>
<td></td>
<td>1</td>
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**PELOD Scoring System**

<table>
<thead>
<tr>
<th>Organ System</th>
<th>Variable</th>
<th>0</th>
<th>1</th>
<th>10</th>
<th>20</th>
</tr>
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<tr>
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<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td>12-15</td>
<td>7-11</td>
<td></td>
<td>3</td>
</tr>
<tr>
<td></td>
<td>Papillary reaction</td>
<td>Both reactive</td>
<td>Both fixed</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Cardiovascular</td>
<td>Heart rate</td>
<td>≤195 bpm</td>
<td>&gt;195 bpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;12 y</td>
<td>≤195 bpm</td>
<td>&gt;195 bpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&gt;12 y</td>
<td>≤195 bpm</td>
<td>&gt;150 bpm</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Systolic blood pressure</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;1 mo</td>
<td>&gt;65 mm Hg</td>
<td>35-65 mm Hg</td>
<td>&lt;35 mm Hg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥ 1 mo &amp; &lt;1yr</td>
<td>&gt;75 mm Hg</td>
<td>35-75 mm Hg</td>
<td>&lt;35 mm Hg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥ 1 yr &amp; &lt;12 y</td>
<td>&gt;85 mm Hg</td>
<td>45-85 mm Hg</td>
<td>&lt;45 mm Hg</td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥12 y</td>
<td>&gt;95 mm Hg</td>
<td>55-95 mm Hg</td>
<td>&lt;55 mm Hg</td>
<td></td>
</tr>
<tr>
<td>Renal</td>
<td>Creatinine</td>
<td>&lt;1.59 mg/dL</td>
<td>≥1.59 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>&lt;7d</td>
<td>&lt;1.59 mg/dL</td>
<td>≥1.59 mg/dL</td>
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<td></td>
</tr>
<tr>
<td></td>
<td>≥7d &amp; &lt;1 y</td>
<td>&lt;0.62 mg/dL</td>
<td>≥0.62 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥ 1 y &amp; &lt;12 y</td>
<td>&lt;1.13 mg/dL</td>
<td>≥1.13 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>≥12 y</td>
<td>&lt;1.59 mg/dL</td>
<td>≥1.59 mg/dL</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pulmonary</td>
<td>Pa O$_2$/F10$_2$ ratio</td>
<td>&gt;70 mm Hg</td>
<td>≤70 mm Hg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Pa CO$_2$</td>
<td>≤90 mm Hg</td>
<td>&gt;90 mm Hg</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Mechanical vent</td>
<td>No</td>
<td>Yes</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hematologic</td>
<td>WBC</td>
<td>≥4.5 K</td>
<td>1.5-4.4 K</td>
<td>&lt;1.5</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Platelets</td>
<td>≥35 K</td>
<td>&lt;35</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Hepatic</td>
<td>AST</td>
<td>&lt;950 IU/L</td>
<td>≥950 IU/L</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td>Prothrombin time</td>
<td>&gt;60%</td>
<td>≤60%</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

1 Abbreviations: PELOD, Pediatric Logistic Organ Dysfunction; bpm, blood pressure monitor; Pa O$_2$/F10$_2$, partial pressure of oxygen, arterial/fraction of inspired oxygen; Pa CO$_2$, partial pressure of carbon dioxide, arterial; WBC, white blood cells; AST, aspartate aminotransferase.

Development of a Pediatric Multiple Organ Dysfunction Score: Use of Two Strategies
Stéphane Leteurtre, Alain Martinot, Alain Duhamel, France Gauvin, Bruno Grandbastien, Thi Vu Nam, François Proulx
# FIGURE

Critical Care Triage Tool - Pediatric Patients (<18y) (Top), and Exclusion Criteria (Bottom).

<table>
<thead>
<tr>
<th>Color Code</th>
<th>Criteria Priority/Action</th>
<th>Criteria Priority/Action</th>
<th>Criteria Priority/Action</th>
</tr>
</thead>
<tbody>
<tr>
<td>Blue</td>
<td>Exclusion criteria OR PELOD ≥ 33</td>
<td>Medical management +/- palliate &amp; discharge from critical care</td>
<td>Exclusion criteria OR PELOD ≥ 33 or PELOD 21-33 &amp; no change</td>
</tr>
<tr>
<td>Red</td>
<td>PELOD ≤ 21 OR Single organ failure</td>
<td>Highest</td>
<td>PELOD &lt;33 and decreasing</td>
</tr>
<tr>
<td>Yellow</td>
<td>PELOD 21-33</td>
<td>Intermediate</td>
<td>PELOD &lt;21 no change</td>
</tr>
<tr>
<td>Green</td>
<td>No significant organ failure</td>
<td>Defer or discharge, reassess as needed</td>
<td>No longer ventilator dependent</td>
</tr>
</tbody>
</table>

**Exclusion Criteria**

Patient is excluded from admission or transfer to critical care if any of the following is present:

- **A** Severe trauma
  - Age > 60 y
  - >40% of total body surface area affected
  - Inhalation injury

- **C** Cardiac arrest
  - Unwitnessed cardiac arrest
  - Witnessed cardiac arrest, not responsive to electrical therapy (defibrillation or pacing)
  - Recurrent cardiac arrest

- **D** Metastatic malignant disease with poor prognosis

- **E** Advanced and irreversible immunocompromise

- **F** Severe and irreversible neurologic event or condition with highly expected mortality

- **G** End-stage organ failure meeting the following criteria:
  - **Heart**
    - NYHA class III or IV heart failure
  - **Lungs**
    - Severe chronic lung disease with FEV₁ <25% predicted, baseline Pao₂ <55 mm Hg, or secondary pulmonary hypertension
    - Previously diagnosed primary pulmonary hypertension with NYHA class III or IV heart failure, or mean pulmonary arterial pressure >50 mm Hg
  - **Liver**
    - Child-Pugh score ≥ 7 or MELD score of >20

NYHA New York Heart Association; FEV₁ forced expiratory volume in the first second of expiration; MELD, model for end-stage liver disease
Core strategies that can be employed (generally in order of preference) during or in anticipation of a scarce resource situation are:

**Prepare**—pre-event actions taken to minimize resource scarcity.

**Substitute**—use an essentially equivalent device, drug, or personnel for one that would usually be available (e.g., morphine for fentanyl).

**Adapt**—use a device, drug, or personnel that are not equivalent but that will provide sufficient care (e.g., anesthesia machine for mechanical ventilation).

**Conserve**—use less of a resource by lowering dosage or changing utilization practices (e.g., minimizing use of oxygen driven nebulizers to conserve oxygen).

**Re-use**—re-use (after appropriate disinfection / sterilization) items that would normally be single-use items.

**Re-allocate**—take a resource from one patient and giving it to a patient with a better prognosis or greater need.

Examples of the application of these strategies are presented below. Some examples refer to situations that may take place outside of a public health emergency and may already be addressed by medical staff.

**Oxygen**

**Conserve strategy**—Use minimum liter flow to keep O2 saturation > target (85–95% depending on situation). Use O2 conserving cannulas (Oxymizer™). No oxygen driven nebs. Eliminate or reduce equipment with high O2 consumption.

**Re-Use strategy**—Appropriately disinfect and re-use cannulas, masks, and tubing.

**Re-Allocate strategy**—May have to base therapy on triage decision tool similar to ventilator allocation.

**Medication Administration**

**Substitute strategy**—Use alternative inexpensive medications (morphine, lorazepam, doxycycline) that are easily stockpiled prior to the event.

**Adapt strategy**—Use morphine and benzodiazepines for sedation drips, when possible. Run drips via gravity rather than IV pump, if needed. Administer more medications via a subcutaneous or...
intramuscular route rather than intravenously.

**Conserve strategy**—Give adjunctive non-steroidal and other analgesics/medications including orally when possible.

**Re-Allocate strategy**—Re-allocation should be considered as the last resort. Re-allocation will increase demands for palliative care and adequate pain control/sedation—focus should be on stockpiling inexpensive options in advance of event.

**Hemodynamic Support and IV Fluids**

**Substitute strategy**—Use alternative vasopressor agents such as epinephrine (inexpensive).

**Adapt strategy**—May have higher threshold to initiate vasopressors, may use gravity drips (e.g., 1mg epinephrine in 100cc NS) instead of infusion pumps. Consider nasogastric fluid replacement rather than IV.

**Conserve strategy**—Minimize invasive monitoring.

**Re-Use strategy**—Consider reusing central venous catheters, other tubes and catheters with appropriate sterilization/disinfection.

**Mechanical Ventilation**

**Adapt strategy**—Use of anesthesia machines, BiPAP, short-term manual ventilation and other strategies.

**Conserve strategy**—Adjusted threshold for intubation, decrease elective surgeries to free up ventilators/anesthesia machines.

**Re-Use strategy**—Re-use of ventilator circuits after appropriate sterilization / disinfection.

**Re-Allocate strategy**—Re-allocation should be considered as the last resort. Ventilators should be allocated to patients who can most benefit, and allocation should follow a pre-planned process and use decision support tools and expert clinical judgment.

**Nutrition**

**Adapt strategy**—Have family or ancillary staff provide meals. Provide simpler meals and offer fewer choices to those that can take oral intake. Use tube feedings instead of total parenteral nutrition when possible. Delay feedings longer than usual.

**Conserve strategy**—See above.

**Re-Use strategy**—May need to re-use nasogastric and other feeding equipment with appropriate disinfection.

**Staffing**

**Substitute strategy**—Outside, equally-qualified staff brought in to institution via compact agreements or other mechanism (DMAT, Medical Reserve Corps, other local/regional/state/federal sources). Use family or non-professional staff to provide basic patient cares (non-clinical).
Adapt strategy—Less qualified staff from sources as above or volunteers provide basic patient care with critical care nursing and physician staff monitoring larger numbers of patients. Implement just-in-time training and orientation to job duties following pre-planned training programs. Change shift duration. Use family or non-professional staff to provide some clinical care with training/in-service.

Conserve strategy—Reduce administrative demands (teaching and administration, documentation, etc.).
To: Health Care Personnel  

From: Julie Coleman, Director, Bureau of Waste Management  

Date: January 31, 2020  

Re: Management of Medical Waste Generated During the Care of Novel Coronavirus Patients  

Based on current information, it has been determined that medical waste generated during the care of patients with novel coronavirus can be managed as normal medical waste. This applies to both patients under investigation (PUIs) and patients with confirmed illness.

In Kansas, medical services waste means solid waste which has the potential to transmit disease or cause injury that is generated during care of patients.

The attached Medical Services Waste Technical Guidance Document (TGD) provides an overview of the proper management of medical services waste and is based on Kansas regulations regarding medical services waste (K.A.R. 28-29-27).

An update to this guidance will be disseminated if new information becomes available that indicates other procedures or precautions should be followed when managing medical waste associated with the care of novel coronavirus patients.

cc Farrah Ahmed, State Epidemiologist  
Leo Henning, Deputy Secretary of Environment  
Ashley Goss, Deputy Secretary of Public Health
Medical Waste Management
Technical Guidance Document SW-2000-G1

This guidance document outlines acceptable practices for health or medical facility personnel who handle, store, and dispose of medical services waste.

Background

This guidance document summarizes the requirements for managing medical services waste in Kansas in accordance with Kansas administrative regulation (K.A.R.) 28-29-27, which defines medical services wastes as those solid waste materials which are potentially capable of causing disease or injury and which are generated in connection with human or animal care through inpatient and outpatient services. The primary reason for establishing and maintaining proper management practices for medical services waste, or medical waste (MW), is to prevent the transmission of disease and injury to persons routinely involved in MW management at health and medical facilities as well as waste haulers.

Management of Medical Waste

Medical waste should be managed according to the following standards, which are illustrated in the flowchart on the next page:

- The medical waste must be placed in containers which are:
  - closable;
  - constructed to contain all contents and prevent leakage of fluids; and
  - closed prior to being moved for storage or transported for disposal.

- In accordance with OSHA standards for bloodborne pathogens, all containers holding such regulated waste must comply with the applicable requirements of 29 CFR 1910.1030.

- To remove or minimize the potential for MW to cause disease or injury, the facility may process the medical waste by incineration or sterilization using autoclaving, microwaving, chemical treatment, or other approved methods. If the MW has been processed, the waste can be mixed with general solid waste and transported to a permitted municipal solid waste landfill (MSWLF).

- If the medical waste is not processed:
  - The facility may obtain a special waste disposal authorization (SWDA) per K.A.R. 28-29-109 and transport the MW separately to an MSWLF; or
  - The facility may contract with a medical waste company for transportation of the MW to a permitted medical waste processing facility or, with a SWDA, to an MSWLF.

For additional information regarding the proper management of solid or hazardous waste in Kansas, or to obtain a special waste disposal authorization, you may visit the Bureau of Waste Management website at www.kdheks.gov/waste/ or contact the Bureau at: 785-296-1600, kdhe.bwmweb@ks.gov, or the address at the top of this document.
Medical Waste Management Process

Abbreviations:
- MSWLF: municipal solid waste landfill
- MW: medical waste

1. MW is generated at Health Care Facility
2. Place MW in labeled MW container
3. Has the MW been processed?
   - No: Will Facility dispose of the MW?
     - No: Contract w/ MW Transport & Disposal Company
     - Yes: Get Special Waste Disposal Authorization
6. Transport separately to MSWLF
7. The MW may be mixed with other solid waste
   - Yes: Transport to MSWLF
Strategies for Optimizing the Supply of N95 Respirators

Updated March 2, 2020

- Engineering Controls
- Administrative Controls
- Personal Protective Equipment and Respiratory Protection

This document offers guidance on how to optimize supplies of N95 filtering facepiece respirators (commonly called “N95 respirators”) in healthcare settings in the face of potential ongoing coronavirus disease 2019 (COVID-19) transmission in the United States. The recommendations are intended for use by professionals who manage respiratory protection programs, occupational health services, and infection prevention programs in healthcare institutions to protect healthcare personnel (HCP) from job-related risks of exposure to infectious respiratory illnesses.

Controlling exposures to occupational hazards is a fundamental way to protect personnel. Traditionally, a hierarchy of controls approach has been used to achieve feasible and effective control. Some of the control measures may fall into multiple categories. It should also be emphasized that multiple control strategies can be implemented concurrently and or sequentially. This hierarchy can be represented as follows:

- Elimination
- Substitution
- Engineering controls
- Administrative controls
- Personal protective equipment (PPE)

To prevent infectious disease transmission, elimination (physically removing the hazard) and substitution (replacing the hazard) are not typically options for the healthcare setting. However, exposures to transmissible respiratory pathogens in healthcare facilities can often be reduced or possibly avoided through engineering and administrative controls and PPE. Prompt detection and effective triage and isolation of potentially infectious patients are essential to prevent unnecessary exposures among patients, HCP, and visitors at the facility.

N95 respirators are the PPE most often used to control exposures to infections transmitted via the airborne route, though their effectiveness is highly dependent upon proper fit and use. It is important to recognize that the optimal way to prevent airborne transmission is to use a combination of interventions from across the hierarchy of controls, not just PPE alone. Applying a combination of controls can provide a degree of protection, even if one intervention fails or is not available.

Respirators, when required to protect HCP from airborne contaminants such as infectious agents, must be used in the context of a comprehensive, written respiratory
protection program that meets the requirements of OSHA's Respiratory Protection standard. The program should include medical evaluations, fit testing, and training.

Supplies of N95 respirators can become depleted during pandemics or when otherwise in high demand. Existing CDC guidelines recommend a combination of approaches to conserve supplies while safeguarding HCP in such circumstances. These existing guidelines recommend that healthcare facilities:

- Minimize the number of HCP who need to use respiratory protection through the preferential use of engineering and administrative controls;
- Use alternatives to N95 respirators (e.g., other classes of filtering facepiece respirators, elastomeric half-mask and full facepiece air-purifying respirators, powered air-purifying respirators) where feasible;
- Implement practices allowing extended use and/or limited reuse of N95 respirators, when acceptable; and
- Prioritize the use of N95 respirators for those HCP at the highest risk of acquiring infection or experiencing complications of infection.

**Engineering Controls**

Engineering controls reduce exposures for HCP by placing a barrier between the hazard and the HCP. Engineering controls can be very effective as part of a suite of strategies to protect HCP without placing primary responsibility of implementation on them (i.e., they function without HCP having to take an action). This set of controls should already be implemented in healthcare settings. In the continuum of surge capacity and standards of care, these measures can be categorized as conventional capacity, which consists of providing patient care without any change in daily practices.

Patients with known or suspected SARS-CoV-2 (i.e., person under investigation [PUI]) should be placed in an airborne infection isolation room (AIIR) that has been constructed and maintained in accordance with current guidelines, as recommended in the *Interim infection prevention and control recommendations for patients with confirmed SARS-CoV-2 or persons under investigation for SARS-CoV-2 in Healthcare Settings*.

Barriers such as glass/plastic windows can be an effective solution for reducing exposures among HCP to potentially infectious patients. This approach can be effective in reception areas (e.g., intake desk at emergency department, triage station, information booth, pharmacy drop-off/pick-up windows) where patients may first report upon arrival to a healthcare facility. Other examples include the use of curtains between patients in shared areas and closed suctioning systems for airway suctioning for intubated patients.

Another cornerstone of engineering controls are ventilation systems that provide air movement in a clean (HCP workstation or area) to contaminated (sick patient) flow direction (along with appropriate filtration, exchange rate) that are installed and properly maintained.
Administrative Controls

The term **administrative controls** refers to employer-dictated work practices and policies that reduce or prevent hazardous exposures. Their effectiveness depends on employer commitment and HCP acceptance and consistent use of the strategies. Regular training, monitoring and reinforcement are necessary to ensure that policies and procedures are followed consistently. Many of these strategies should already be incorporated into existing infection prevention and control policies in healthcare settings. In the continuum of surge capacity and standards of care, the following administrative control measures can be categorized as conventional capacity, which consists of providing patient care without any change in daily practices.

Limit number of patients going to hospital or outpatient settings
Consider developing mechanisms to screen patients for acute respiratory illness prior to their non-urgent care or elective visits or procedures, such as through the appointment reminder system. Postpone and reschedule those with signs and symptoms presenting for these non-acute visits.

Exclude HCP not directly involved in patient care
Limit the number of HCP who enter the patient’s room to only those providing direct patient care. Implement staffing policies to minimize the number of HCP who enter the room and consider excluding staff such as dietary and housekeeping employees.

Limit face-to-face HCP encounters with patient
Measures can be explored to limit face-to-face contact encounters between HCP and patients with confirmed or suspected COVID-19. HCP may consider bundling care activities to minimize room entries, and bundling may occur across HCP types (e.g., food trays are delivered by HCP performing other care). Alternative mechanisms for HCP and patient interactions include telephones, video monitoring, and video-call applications on cell phones or tablets.

Exclude visitors to patients with known or suspected COVID-19 patients (i.e., PUI)
Restrict visitors from entering the room of known or suspected COVID-19 patients (i.e., PUI), as recommended in the *Interim infection prevention and control recommendations for patients with confirmed SARS-CoV-2 or persons under investigation for SARS-CoV-2 in Healthcare Settings*. Alternative mechanisms for patient and visitor interactions, such as video-call applications on cell phones or tablets should be explored. Facilities can consider exceptions based on end-of-life situations or when a visitor is essential for the patient’s emotional well-being and care. If visitors must enter the room of a known or suspected COVID-19 patient, facilities should provide instruction, before visitors enter patients’ rooms on use of PPE according to current facility policy while in the patient’s room.

Source control
Identify and assess patients who may be ill with or who may have been exposed to a patient with known COVID-19. Patients with symptoms of suspected SARS-CoV-2 or other respiratory infection (e.g., fever, cough) presenting to care should use
facemasks for source control until they can be placed in an airborne infection isolation room or a private room. Instructions should include how to use facemasks. Patients with these symptoms should not use N95 respirators. If these patients need to leave their room for services in other areas of the hospital (e.g., radiology), they should also wear facemasks for source control.

**Cohorting patients**
Cohorting is the practice of grouping together patients who are infected with the same organism to confine their care to one area and prevent contact with other patients. Cohorts are created based on clinical diagnosis, microbiologic confirmation when available, epidemiology, and mode of transmission of the infectious agent. Cohorting has been used extensively for managing outbreaks of multidrug resistant organisms including MRSA, VRE, MDR-ESBLs, *Pseudomonas aeruginosa*; methicillin-susceptible *Staphylococcus aureus*, RSV, adenovirus keratoconjunctivitis, rotavirus, and SARS. When single patient rooms are not available, patients with confirmed COVID-19 may be placed in the same room. Cohorting patients could minimize respirator use when extended wear of RPDs is implemented. For more information on cohorting of patients, refer to [2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings](#).

**Cohorting HCP**
Assigning designated teams of HCP to provide care for all patients with suspected or confirmed COVID-19 could minimize respirator use when extended wear of RPDs is implemented. This strategy can also limit the number of HCP exposed to SARS-CoV-2 and limit the number of HCP who need to be fit tested.

**Telemedicine**
Nurse advice lines and telemedicine can screen and manage patients who may be infected with SARS-CoV-2 without the need for the HCP to use RPDs. Promoting the use of these technologies and referral networks can help triage persons to the appropriate level of care, potentially reducing the influx of patients to healthcare facilities seeking evaluation.

**Training on indications for use of N95 respirators**
It is also important that HCP be trained on indications for use of N95 respirators. The OSHA Respiratory Protection standard requires employers to provide respirator training prior to requiring an employee to use a respirator in the workplace. For example, HCP should use N95 respirators when caring for patients under airborne precautions for infectious diseases including COVID-19, tuberculosis, measles, and varicella. HCP should generally not need to use N95 respirators when caring for patients under droplet precautions for infectious diseases except under certain circumstances (e.g., aerosol-generating procedures for influenza).

**Training on use of N95 respirators**
Training employees on the proper use of respirators, including putting on and removing them, limitations on their use, and maintenance is essential for effective use of
respiratory protection. HCP should be thoroughly trained before they are fit tested to ensure they are comfortable donning the respirator and know how to conduct a user seal check. HCPs should be trained on the respirator they are expecting to use at work.

**Just in time fit testing**
Facilities may also adopt a plan to use the “just-in-time” method for fit testing, which has been incorporated into pandemic plans for many facilities. For large facilities, it may not be feasible to fit test all employees, especially if their job does not typically place them at risk for exposure to airborne infectious diseases such as tuberculosis. These hospitals have the capacity to do larger scale training and fit testing of employees when necessary during a pandemic. If healthcare facilities are expecting to receive COVID-19 patients, they should begin training and start to plan for fit testing now. It is essential to have HCP trained and fit tested prior to receiving patients.

**Limiting respirators during training**
In order to conserve the supply of N95 respirators, healthcare facilities should be clear on which of their HCP do and do not need to be in a respiratory protection program and thus medically evaluated, trained, and fit tested. If training and fit testing are conducted during two separate steps, it may be possible to allow limited re-use of N95 respirators used by individual HCP during both steps. Employees should be fit tested after they are comfortable donning the respirator and have passed a user seal check. Employees should be trained on the respirator they are expecting to use at work. The respirator can be saved and used for fit testing and patient care.

**Qualitative fit testing**
Respirator fit test methods are classified as either qualitative or quantitative, and there are multiple protocols of each classification that are NIOSH-recommended or meet the requirements of OSHA’s Respiratory Protection Standard. A qualitative fit test is a pass/fail test to assess the adequacy of respirator fit that relies on the individual’s sensory detection of a test agent. A quantitative fit test numerically measures the effectiveness of the respirator to seal with the wearer’s face, without relying on the wearer’s voluntary or involuntary response to a test agent. Quantitative fit tests involve adaptation of the respirator to the fit testing equipment, which can involve making holes in the respirator.

Many healthcare systems already use qualitative fit test methods for fit testing HCP. For those using quantitative fit test methods, considerations can be made to use qualitative fit test methods to minimize the destruction of an N95 respirator used in fit testing and allow for the re-use of the same N95 respirator by the HCP. Qualitative fit methods may also allow for rapid fit testing of larger numbers of HCP. Any switch in methods should be assessed to ensure proficiency of the fit testers in carrying out the test.

**Personal Protective Equipment and Respiratory Protection**
While engineering and administrative controls should be considered first when selecting controls, the use of PPE should also be part of a suite of strategies used to protect personnel. Proper use of respiratory protection by HCP requires a comprehensive
program (including medical clearance, training, and fit testing) that complies with OSHA’s Respiratory Protection Standard and a high level of HCP involvement and commitment. The program should also include provisions for the cleaning, disinfecting, inspection, repair, and storage of respirators used by workers on the job. Proper storage conditions can maximize shelf life of respirators. The following strategies are additional strategies that can be considered by healthcare settings in the face of a potential N95 respirator shortage.

**Conventional Capacity Strategies**
The following two strategies may already be incorporated into existing infection prevention and control policies in healthcare settings. In the continuum of surge capacity and standards of care, the following two measures can be categorized as conventional capacity, which consists of providing patient care without any change in daily practices.

**Surgical N95 respirators**
Surgical N95 respirators (also referred as a medical respirator) are recommended only for use by HCP who need protection from both airborne and fluid hazards (e.g., splashes, sprays). These respirators are not used or needed outside of healthcare settings. In times of shortage, only HCP who are working in a sterile field or who may be exposed to high velocity splashes, sprays, or splatters of blood or body fluids should be provided these respirators. Other HCP can use standard N95 respirators. If surgical N95 respirators are not available, and there is a risk that the worker may be exposed to high velocity splashes, sprays, or splatters of blood or body fluids, then a face shield should be worn over the standard N95 respirator. It is not recommended to use N95s beyond the manufacturer-designated shelf life in surgical settings.

**Use of alternatives to N95 respirators**
Use alternatives to N95 respirators where feasible. These include other classes of filtering facepiece respirators, elastomeric half-mask and full facepiece air purifying respirators, powered air purifying respirators (PAPRs) where feasible. All of these alternatives will provide equivalent or higher protection than N95 respirators.

NIOSH approves other filtering facepiece respirators that are at least as protective as the N95. These include N99, N100, P95, P99, P100, R95, R99, and R100.

Elastomeric respirators are sometimes referred to as reusable respirators because the facepiece is cleaned and reused but the filter cartridges are discarded and replaced when they become unsuitable for further use. Similar to N95 respirators, elastomeric respirators require annual fit testing. Elastomeric respirators should not used in surgical settings due to concerns that air coming out of the exhalation valve may contaminate the sterile field.

PAPRs are reusable respirators that are typically loose-fitting hoods or helmets. These respirators are battery-powered with blower that pulls air through attached filters or cartridges. The filter is typically a high-efficiency particulate air (HEPA) filter. Loose-
fitting PAPRs do not require fit-testing and can be used with facial hair. However, PAPRs should not be used in surgical settings due to concerns that the blower exhaust and exhaled air may contaminate the sterile field.

Facilities using elastomeric respirators and PAPRs should have up to date cleaning/disinfection procedures, which are an essential part of use for protection against infectious agents.

Contingency Capacity Strategies
In the continuum of surge capacity and standards of care, the following two measures can be categorized as contingency capacity, which may change daily practices but may not have any significant impact on the care delivered to the patient or the safety of the HCP. The following measures may be considered in the setting of a potential impending shortage of N95 respirators.

Use of respirators after their intended shelf life
CDC and NIOSH believe the following products, despite being past their manufacturer-designated shelf life, should provide the expected level of protection to the user if the stockpile conditions have generally been in accordance with the manufacturer-recommended storage conditions and an OSHA-compliant respiratory protection program is used by employers. In alphabetical order, these models are:

- 3M 1860
- 3M 1870
- 3M 8210
- 3M 9010
- 3M 8000
- Gerson 1730
- Medline/Alpha Protech NON27501
- Moldex 1512
- Moldex 2201

In times of increased demand and decreased supply, consideration can be made to use N95 respirators past their intended shelf life. However, the potential exists that the respirator will not perform to the requirements for which it was certified. Over time, components such as the strap and material may degrade, which can affect the quality of the fit and seal. Prior to use of N95 respirators, the HCP should inspect the respirator and perform a seal check. Additionally, expired respirators may potentially no longer meet the certification requirements set by NIOSH. CDC had recommended guidance on implementation of use beyond shelf life of N95 respirators.

Extended use and limited reuse
In the setting of a potential N95 respirator shortage, consider implementing practices allowing extended use and/or limited reuse of N95 respirators, when acceptable. The decision to implement policies that permit extended use or limited reuse of N95
respirators should be made by the professionals who manage the institution’s respiratory protection program, in consultation with their occupational health and infection control departments with input from the state/local public health departments. CDC has recommended guidance on implementation of extended use and limited reuse of N95 respirators in healthcare settings.

The decision to implement these practices should be made on a case by case basis taking into account known characteristics of the SARS-CoV-2 and local conditions (e.g., number of disposable N95 respirators available, current respirator usage rate, success of other respirator conservation strategies, etc.) Both Extended use and limited reuse have been recommended and widely used as an option for conserving respirators during previous respiratory pathogen outbreaks and pandemics.

Extended use refers to the practice of wearing the same N95 respirator for repeated close contact encounters with several different patients, without removing the respirator between patient encounters. Extended use may be implemented when multiple patients are infected with the same respiratory pathogen and patients are placed together in dedicated waiting rooms or hospital wards.

Reuse refers to the practice of using the same N95 respirator by one HCP for multiple encounters with different patients but removing it (i.e. doffing) after each encounter. N95 and other disposable respirators should not be shared by multiple workers. The respirator is stored in between encounters to be put on again (i.e. donned) prior to the next encounter with a patient. For pathogens for which contact transmission (e.g., contact with fomites) is not a concern (e.g., tuberculosis), non-emergency reuse has been practiced for decades. For example, for tuberculosis prevention, CDC recommends that a respirator classified as disposable can generally be reused by the same worker as long as it remains functional and is used in accordance with local infection control procedures. Therefore, to extend the supply of N95 respirators during an anticipated dwindling supply, HCP could be encouraged to practice limited reuse of their N95 respirators when caring for patients with tuberculosis disease.

Even when N95 respirator reuse is practiced or recommended, restrictions are in place which limit the number of times the same respirator is reused. Thus, N95 respirator reuse is often referred to as “limited reuse.” To maintain the integrity of the respirator, it is important for HCP to hang used respirators in a designated storage area or keep them in a clean, breathable container such as a paper bag between uses. It is prohibited to modify the N95 respirator by placing any material within the respirator or over the respirator. Modification may negatively affect the performance of the respirator and could void the NIOSH approval.
Interim Guidance for Preventing the Spread of Coronavirus Disease 2019 (Covid-19) in Homes and Residential Communities

Update: February 14, 2020

(This guidance provides clarification regarding evaluation for home isolation and a new section with information regarding preventative steps for household members, intimate partners, and caregivers in a nonhealthcare setting of a person with symptomatic, laboratory-confirmed COVID-19 infection)

This interim guidance is based on what is currently known about the epidemiology of COVID-19 and the transmission of other viral respiratory infections. CDC will update this interim guidance as needed and as additional information becomes available.

Coronaviruses are a large family of viruses, some causing illness in people and others that circulate among animals, including camels, cats, and bats. Rarely, animal coronaviruses can infect people exposed to infected animals, and then spread among people, as has been seen with MERS-CoV and SARS-CoV, and likely now with COVID-19. This interim guidance may help prevent this virus from spreading among people in their homes and in other residential communities.

This interim guidance is intended for:

- **People with confirmed or suspected COVID-19 infection**, including persons under investigation, who do not need to be hospitalized and who can receive care at home (see Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for 2019 Novel Coronavirus (COVID-19));
- **People with confirmed COVID-19 infection**, who were hospitalized and then determined to be medically stable to go home (see Interim Guidance for Implementing Home Care of People Not Requiring Hospitalization for 2019 Novel Coronavirus (COVID-19));
- Household members, intimate partners, and caregivers in a nonhealthcare setting of a person with symptomatic, laboratory-confirmed COVID-19 infection.

**Prevention steps for People with confirmed or suspected COVID-19 infection (including persons under investigation) who do not need to be hospitalized and People with confirmed COVID-19 infection who were hospitalized and determined to be medically stable to go home**

Your healthcare provider and public health staff will evaluate whether you can be cared for at home. If it is determined that you do not need to be hospitalized and can be isolated at home, you will be monitored by staff from your local or state health
department. You should follow the prevention steps below until a healthcare provider or local or state health department says you can return to your normal activities.

**Stay home except to get medical care**
You should restrict activities outside your home, except for getting medical care. Do not go to work, school, or public areas. Avoid using public transportation, ride-sharing, or taxis.

**Separate yourself from other people and animals in your home**
People: As much as possible, you should stay in a specific room and away from other people in your home. Also, you should use a separate bathroom, if available.

Animals: Do not handle pets or other animals while sick. See [COVID-19 and Animals](#) for more information.

**Call ahead before visiting your doctor**
If you have a medical appointment, call the healthcare provider and tell them that you have or may have COVID-19 infection. This will help the healthcare provider’s office take steps to keep other people from getting infected or exposed.

**Wear a facemask**
You should wear a facemask when you are around other people (e.g., sharing a room or vehicle) or pets and before you enter a healthcare provider’s office. If you are not able to wear a facemask (for example, because it causes trouble breathing), then people who live with you should not stay in the same room with you, or they should wear a facemask if they enter your room.

**Cover your coughs and sneezes**
Cover your mouth and nose with a tissue when you cough or sneeze. Throw used tissues in a lined trash can; immediately wash your hands with soap and water for at least 20 seconds or clean your hands with an alcohol-based hand sanitizer that contains 60 to 95% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially if hands are visibly dirty.

**Clean your hands often**
Wash your hands often with soap and water for at least 20 seconds or clean your hands with an alcohol-based hand sanitizer that contains 60 to 95% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially if hands are visibly dirty. Avoid touching your eyes, nose, and mouth with unwashed hands.

**Avoid sharing personal household items**
You should not share dishes, drinking glasses, cups, eating utensils, towels, or bedding with other people or pets in your home. After using these items, they should be washed thoroughly with soap and water.
Clean all “high-touch” surfaces everyday
High touch surfaces include counters, tabletops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables, every day. Also, clean any surfaces that may have blood, stool, or body fluids on them. Use a household cleaning spray or wipe, according to the label instructions. Labels contain instructions for safe and effective use of the cleaning product including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.

Monitor your symptoms
Seek prompt medical attention if your illness is worsening (e.g., difficulty breathing). Before seeking care, call your healthcare provider and tell them that you have, or are being evaluated for, COVID-19. Put on a facemask before you enter the facility. These steps will help the healthcare provider’s office to keep other people in the office or waiting room from getting infected or exposed. Ask your healthcare provider to call the local or state health department. Persons who are placed under active monitoring or facilitated self-monitoring should follow instructions provided by their local health department or occupational health professionals, as appropriate.

If you have a medical emergency and need to call 911, notify the dispatch personnel that you have, or are being evaluated for COVID-19. If possible, put on a facemask before emergency medical services arrive.

Discontinuing home isolation
Patients with confirmed COVID-19 should remain under home isolation precautions until the risk of secondary transmission to others is thought to be low. The decision to discontinue home isolation precautions should be made on a case-by-case basis, in consultation with healthcare providers and state and local health departments.

Recommended precautions for household members, intimate partners, and caregivers in a nonhealthcare setting of a patient with symptomatic laboratory-confirmed COVID-19 infection or a patient under investigation
Household members, intimate partners, and caregivers in a nonhealthcare setting may have close contact with a person with symptomatic, laboratory-confirmed COVID-19 or a person under investigation. Close contacts should monitor their health; they should call their healthcare provider right away if they develop symptoms suggestive of COVID-19 (e.g., fever, cough, shortness of breath) (see Interim US Guidance for Risk Assessment and Public Health Management of Persons with Potential 2019 Novel Coronavirus (COVID-19) Exposure in Travel-associated or Community Settings.)

Close contacts should also follow these recommendations:
- Make sure that you understand and can help the patient follow their healthcare provider’s instructions for medication(s) and care. You should help the patient with basic needs in the home and provide support for getting groceries, prescriptions, and other personal needs.
• Monitor the patient’s symptoms. If the patient is getting sicker, call his or her healthcare provider and tell them that the patient has laboratory-confirmed COVID-19. This will help the healthcare provider’s office take steps to keep other people in the office or waiting room from getting infected. Ask the healthcare provider to call the local or state health department for additional guidance. If the patient has a medical emergency and you need to call 911, notify the dispatch personnel that the patient has, or is being evaluated for COVID-19.

• Household members should stay in another room or be separated from the patient as much as possible. Household members should use a separate bedroom and bathroom, if available.

• Prohibit visitors who do not have an essential need to be in the home.

• Household members should care for any pets in the home. Do not handle pets or other animals while sick. For more information, see 2019-nCoV and Animals.

• Make sure that shared spaces in the home have good air flow, such as by an air conditioner or an opened window, weather permitting.

• Perform hand hygiene frequently. Wash your hands often with soap and water for at least 20 seconds or use an alcohol-based hand sanitizer that contains 60 to 95% alcohol, covering all surfaces of your hands and rubbing them together until they feel dry. Soap and water should be used preferentially if hands are visibly dirty.

• Avoid touching your eyes, nose, and mouth with unwashed hands.

• You and the patient should wear a facemask if you are in the same room.

• Wear a disposable facemask and gloves when you touch or have contact with the patient’s blood, stool, or body fluids, such as saliva, sputum, nasal mucus, vomit, urine.
  o Throw out disposable facemasks and gloves after using them. Do not reuse.
  o When removing personal protective equipment, first remove and dispose of gloves. Then, immediately clean your hands with soap and water or alcohol-based hand sanitizer. Next, remove and dispose of facemask, and immediately clean your hands again with soap and water or alcohol-based hand sanitizer.

• Avoid sharing household items with the patient. You should not share dishes, drinking glasses, cups, eating utensils, towels, bedding, or other items. After the patient uses these items, you should wash them thoroughly (see below “Wash laundry thoroughly”).

• Clean all “high-touch” surfaces, such as counters, tabletops, doorknobs, bathroom fixtures, toilets, phones, keyboards, tablets, and bedside tables, every day. Also, clean any surfaces that may have blood, stool, or body fluids on them.
  o Use a household cleaning spray or wipe, according to the label instructions. Labels contain instructions for safe and effective use of the cleaning product including precautions you should take when applying the product, such as wearing gloves and making sure you have good ventilation during use of the product.

• Wash laundry thoroughly.
Immediately remove and wash clothes or bedding that have blood, stool, or body fluids on them.

Wear disposable gloves while handling soiled items and keep soiled items away from your body. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after removing your gloves.

Read and follow directions on labels of laundry or clothing items and detergent. In general, using a normal laundry detergent according to washing machine instructions and dry thoroughly using the warmest temperatures recommended on the clothing label.

- Place all used disposable gloves, facemasks, and other contaminated items in a lined container before disposing of them with other household waste. Clean your hands (with soap and water or an alcohol-based hand sanitizer) immediately after handling these items. Soap and water should be used preferentially if hands are visibly dirty.
- Discuss any additional questions with your state or local health department or healthcare provider.

Footnotes

1Home healthcare personnel should refer to Interim Infection Prevention and Control Recommendations for Patients with Known or Patients Under Investigation for 2019 Novel Coronavirus (COVID-19) in a Healthcare Setting

2Close contact is defined as—

a) being within approximately 6 feet (2 meters) of a COVID-19 case for a prolonged period of time (10 minutes or more); close contact can occur while caring for, living with, visiting, or sharing a health care waiting area or room with a COVID-19 case

- or -

b) having direct contact with infectious secretions of a COVID-19 case (e.g., being coughed on)
Interim Guidance for Emergency Medical Services (EMS) Systems and 911 Public Safety Answering Points (PSAPs) for COVID-19 in the United States

This guidance applies to all first responders, including law enforcement, fire services, emergency medical services, and emergency management officials, who anticipate close contact with persons with confirmed or possible COVID-19 during their work.

Background

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.


Case Definition for COVID-19

CDC’s most current case definition for a person under investigation (PUI) for COVID-19 may be accessed at https://www.cdc.gov/coronavirus/2019-nCoV/clinical-criteria.html.

Recommendations for 911 PSAPs

Municipalities and local EMS authorities should coordinate with state and local public health, PSAPs, and other emergency call centers to determine need for modified caller queries about COVID-19, outlined below.
Development of these modified caller queries should be closely coordinated with an EMS medical director and informed by local, state, and federal public health authorities, including the city or county health department(s), state health department(s), and CDC.

**Modified Caller Queries**

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

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

PSAPs and EMS units that respond to ill travelers at US international airports or other ports of entry to the United States (maritime ports or border crossings) should be in contact with the CDC quarantine station of jurisdiction for the port of entry (see: CDC Quarantine Station Contact List) for planning guidance. They should notify the quarantine station when responding to that location if a communicable disease is suspected in a traveler. CDC has provided job aids for this purpose to EMS units operating routinely at US ports of entry. The PSAP or EMS unit can also call CDC’s Emergency Operations Center at (770) 488-7100 to be connected with the appropriate CDC quarantine station.

**Recommendations for EMS Clinicians and Medical First Responders**

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

State and local EMS authorities may direct EMS clinicians to modify their practices as described below.

**Patient assessment**

- If PSAP call takers advise that the patient is suspected of having COVID-19, EMS clinicians should put on appropriate PPE before entering the scene. EMS clinicians should consider the signs, symptoms, and risk factors of COVID-19 (https://www.cdc.gov/coronavirus/2019-nCoV/clinical-criteria.html).
• If information about potential for COVID-19 has not been provided by the PSAP, EMS clinicians should exercise appropriate precautions when responding to any patient with signs or symptoms of a respiratory infection. Initial assessment should begin from a distance of at least 6 feet from the patient, if possible. Patient contact should be minimized to the extent possible until a facemask is on the patient. If COVID-19 is suspected, all PPE as described below should be used. If COVID-19 is not suspected, EMS clinicians should follow standard procedures and use appropriate PPE for evaluating a patient with a potential respiratory infection.

• A facemask should be worn by the patient for source control. If a nasal cannula is in place, a facemask should be worn over the nasal cannula. Alternatively, an oxygen mask can be used if clinically indicated. If the patient requires intubation, see below for additional precautions for aerosol-generating procedures.

• During transport, limit the number of providers in the patient compartment to essential personnel to minimize possible exposures.

Recommended Personal Protective Equipment (PPE)

• EMS clinicians who will directly care for a patient with possible COVID-19 infection or who will be in the compartment with the patient should follow Standard, Contact, and Airborne Precautions, including the use of eye protection. Recommended PPE includes:
  o A single pair of disposable patient examination gloves. Change gloves if they become torn or heavily contaminated,
  o Disposable isolation gown,
  o Respiratory protection (i.e., N-95 or higher-level respirator), and
  o Eye protection (i.e., goggles or disposable face shield that fully covers the front and sides of the face).

• Drivers, if they provide direct patient care (e.g., moving patients onto stretchers), should wear all recommended PPE. After completing patient care and before entering an isolated driver’s compartment, the driver should remove and dispose of PPE and perform hand hygiene to avoid soiling the compartment.
  o If the transport vehicle does not have an isolated driver’s compartment, the driver should remove the face shield or goggles, gown and gloves and perform hand hygiene. A respirator should continue to be used during transport.

• All personnel should avoid touching their face while working.

• On arrival, after the patient is released to the facility, EMS clinicians should remove and discard PPE and perform hand hygiene. Used PPE should be discarded in accordance with routine procedures.

• Other required aspects of Standard Precautions (e.g., injection safety, hand hygiene) are not emphasized in this document but can be found in the guideline titled Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

Precautions for Aerosol-Generating Procedures
If possible, consult with medical control before performing aerosol-generating procedures for specific guidance.

In addition to the PPE described above, EMS clinicians should exercise caution if an aerosol-generating procedure (e.g., bag valve mask (BVM) ventilation, oropharyngeal suctioning, endotracheal intubation, nebulizer treatment, continuous positive airway pressure (CPAP), bi-phasic positive airway pressure (biPAP), or resuscitation involving emergency intubation or cardiopulmonary resuscitation (CPR) is necessary.

- BVMs, and other ventilatory equipment, should be equipped with HEPA filtration to filter expired air.
- EMS organizations should consult their ventilator equipment manufacturer to confirm appropriate filtration capability and the effect of filtration on positive-pressure ventilation.

If possible, the rear doors of the transport vehicle should be opened and the HVAC system should be activated during aerosol-generating procedures. This should be done away from pedestrian traffic.

EMS Transport of a PUI or Patient with Confirmed COVID-19 to a Healthcare Facility (including interfacility transport)

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

- EMS clinicians should notify the receiving healthcare facility that the patient has an exposure history and signs and symptoms suggestive of COVID-19 so that appropriate infection control precautions may be taken prior to patient arrival.
- Keep the patient separated from other people as much as possible.
- Family members and other contacts of patients with possible COVID-19 should not ride in the transport vehicle, if possible. If riding in the transport vehicle, they should wear a facemask.
- Isolate the ambulance driver from the patient compartment and keep pass-through doors and windows tightly shut.
- When possible, use vehicles that have isolated driver and patient compartments that can provide separate ventilation to each area.
  - Close the door/window between these compartments before bringing the patient on board.
  - During transport, vehicle ventilation in both compartments should be on non-recirculated mode to maximize air changes that reduce potentially infectious particles in the vehicle.
  - If the vehicle has a rear exhaust fan, use it to draw air away from the cab, toward the patient-care area, and out the back end of the vehicle.
  - Some vehicles are equipped with a supplemental recirculating ventilation unit that passes air through HEPA filters before returning it to the vehicle.
Such a unit can be used to increase the number of air changes per hour (ACH) (https://www.cdc.gov/niosh/hhe/reports/pdfs/1995-0031-2601.pdf).

- If a vehicle without an isolated driver compartment and ventilation must be used, open the outside air vents in the driver area and turn on the rear exhaust ventilation fans to the highest setting. This will create a negative pressure gradient in the patient area.
- Follow routine procedures for a transfer of the patient to the receiving healthcare facility (e.g., wheel the patient directly into an Airborne Infection Isolation Room).

**Documentation of patient care**

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

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

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

- After transporting the patient, leave the rear doors of the transport vehicle open to allow for sufficient air changes to remove potentially infectious particles.
  - The time to complete transfer of the patient to the receiving facility and complete all documentation should provide sufficient air changes.
- When cleaning the vehicle, EMS clinicians should wear a disposable gown and gloves. A face shield or facemask and goggles should also be worn if splashes or sprays during cleaning are anticipated.
- Ensure that environmental cleaning and disinfection procedures are followed consistently and correctly, to include the provision of adequate ventilation when chemicals are in use. Doors should remain open when cleaning the vehicle.
- Routine cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered, hospital-grade disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product’s label) are appropriate for SARS-CoV-2 (the virus that causes COVID-19) in healthcare settings, including those patient-care areas in which aerosol-generating procedures are performed.
• Products with EPA-approved emerging viral pathogens claims are recommended for use against SARS-CoV-2. These products can be identified by the following claim:
  o “[Product name] has demonstrated effectiveness against viruses similar to SARS-CoV-2 on hard non-porous surfaces. Therefore, this product can be used against SARS-CoV-2 when used in accordance with the directions for use against [name of supporting virus] on hard, non-porous surfaces.”
  o This claim or a similar claim, will be made only through the following communications outlets: technical literature distributed exclusively to health care facilities, physicians, nurses and public health officials, “1-800” consumer information services, social media sites and company websites (non-label related). Specific claims for “SARS-CoV-2” will not appear on the product or master label.
  o See additional information about EPA-approved emerging viral pathogens claimsexternal icon.
• If there are no available EPA-registered products that have an approved emerging viral pathogen claim, products with label claims against human coronaviruses should be used according to label instructions.
• Clean and disinfect the vehicle in accordance with standard operating procedures. All surfaces that may have come in contact with the patient or materials contaminated during patient care (e.g., stretcher, rails, control panels, floors, walls, work surfaces) should be thoroughly cleaned and disinfected using an EPA-registered hospital grade disinfectant in accordance with the product label.
• Clean and disinfect reusable patient-care equipment before use on another patient, according to manufacturer’s instructions.
• Follow standard operating procedures for the containment and disposal of used PPE and regulated medical waste.
• Follow standard operating procedures for containing and laundering used linen. Avoid shaking the linen.

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

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

• State or local public health authorities should be notified about the patient so appropriate follow-up monitoring can occur.
• EMS agencies should develop policies for assessing exposure risk and management of EMS personnel potentially exposed to SARS-CoV-2 in coordination with state or local public health authorities. Decisions for monitoring, excluding from work, or other public health actions for HCP with potential exposure to SARS-CoV-2 should be made in consultation with state or local public health authorities. Refer to the Interim U.S. Guidance for Risk Assessment and Public Health Management of Healthcare Personnel with Potential Exposure in a
Healthcare Setting to Patients with Coronavirus Disease 2019 (COVID-19) for additional information.

- EMS agencies should develop sick-leave policies for EMS personnel that are nonpunitive, flexible, and consistent with public health guidance. Ensure all EMS personnel, including staff who are not directly employed by the healthcare facility but provide essential daily services, are aware of the sick-leave policies.
- EMS personnel who have been exposed to a patient with suspected or confirmed COVID-19 should notify their chain of command to ensure appropriate follow-up.
  - Any unprotected exposure (e.g., not wearing recommended PPE) should be reported to occupational health services, a supervisor, or a designated infection control officer for evaluation.
  - EMS clinicians should be alert for fever or respiratory symptoms (e.g., cough, shortness of breath, sore throat). If symptoms develop, they should self-isolate and notify occupational health services and/or their public health authority to arrange for appropriate evaluation.

EMS Employer Responsibilities

The responsibilities described in this section are not specific for the care and transport of PUIs or patients with confirmed COVID-19. However, this interim guidance presents an opportunity to assess current practices and verify that training and procedures are up-to-date.

- EMS units should have infection control policies and procedures in place, including describing a recommended sequence for safely donning and doffing PPE.
- Provide all EMS clinicians with job- or task-specific education and training on preventing transmission of infectious agents, including refresher training.
- Ensure that EMS clinicians are educated, trained, and have practiced the appropriate use of PPE prior to caring for a patient, including attention to correct use of PPE and prevention of contamination of clothing, skin, and environment during the process of removing such equipment.
- Ensure EMS clinicians are medically cleared, trained, and fit tested for respiratory protection device use (e.g., N95 filtering facepiece respirators), or medically cleared and trained in the use of an alternative respiratory protection device (e.g., Powered Air-Purifying Respirator, PAPR) whenever respirators are required. OSHA has a number of respiratory training videos.
- EMS units should have an adequate supply of PPE.
- Ensure an adequate supply of or access to EPA-registered hospital grade disinfectants (see above for more information) for adequate decontamination of EMS transport vehicles and their contents.
- Ensure that EMS clinicians and biohazard cleaners contracted by the EMS employer tasked to the decontamination process are educated, trained, and have practiced the process according to the manufacturer’s recommendations or the EMS agency’s standard operating procedures.
Additional Resources

The EMS Infectious Disease Playbook, published by the Office of the Assistant Secretary for Preparedness and Response's Technical Resources, Assistance Center, Information Exchange (TRACIE) is a resource available to planners at https://www.ems.gov/pdf/ASPR-EMS-Infectious-Disease-Playbook-June-2017.pdf