WHITE PAPER

Emergency Preparedness and Response in Aging Services

EPIDEMICS, PANDEMICS, AND OUTBREAK RESPONSE

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Pandemic and Outbreak Response

From a systems perspective, pandemic preparedness, prevention, and response requires significant orchestration from all levels of the national health system. The interdependent functions of individuals, providers, organizations, and community, local, state and national—and even international—public health organizations make that orchestration necessary for optimal effectiveness.

In its broadest sense, effectiveness is dependent on the degree to which all stakeholders—not just those who work in healthcare—participate in and adhere to fact-based, evidence-based, and medically indicated practices. Therefore, the higher the degree of alignment in preparation, prevention, and response, the better the chance of improving outcomes and achieving overall objectives related to a pandemic management. Decisions made by one or a few individuals can have far-reaching effects in terms of exposure, risk, and even harm for others.

For healthcare provider organizations, complex challenges such as pandemic and outbreak response call for an enterprise risk management (ERM) approach, taking full advantage of the expertise and experience of the organization’s various domains of operations (see Figure 1. Enterprise Risk Management). These situations require integration of most or all ERM domains to create care and service delivery environments that maintain the highest level of health and welfare for all stakeholder groups (e.g., persons served, families, staff, and visitors) while also slowing down or stopping the spread of infection. Pandemic and outbreak response-related policies and procedures that neglect to include care-critical domains might be less effective in preventing harm, reducing severity, and limiting the spread of infection than those that are fully integrated.

Figure 1. Enterprise Risk Management

There are no small decisions in preparation and response to pandemics and outbreaks. Gaps in response and performance, coupled with delays in decision-making and implementation, can lead to a series of cascading adverse situations and harm to persons served and those providing care and service. Additionally, with each change in day-to-day operations to reduce or mitigate a risk, new risks can emerge. Ongoing communication, feedback and monitoring, problem solving, risk identification, and change implementation processes are crucial to preserve continuity of care and business continuity during a pandemic episode.

Provision 1: The Hazard Vulnerability Assessment and Emergency Preparedness Plan

While different organizations have varying levels of preparedness for different hazards, all healthcare provider organizations have hazard vulnerabilities related to epidemics, pandemics, and outbreaks. Therefore, these scenarios should be included in the organization’s hazard
vulnerability assessments (HVAs). A provider organization can help identify risks and implement policies, procedures, and communication plans by categorizing efforts into three areas of focus recommended by the Centers for Disease Control and Prevention (CDC): to decrease the spread of infections into the facility, within the facility, and between facilities. (CDC “Preparing”)

When conducting regularly scheduled HVAs and updating risk identification throughout the emergency response phase, many factors must be considered, including vulnerability and risks to the various populations served by the provider organization. In the case of aging services providers, vulnerabilities specific to older adult populations must be factored into decision-making about the scope and timing of practice implementation.

Information Monitoring and Reporting
Due to the nature of pandemics and outbreak response, including the fact that evidence-based data are not always readily available in the initial stages of a pandemic, provider organizations should include an ongoing function in their emergency preparedness plan to continuously monitor the external environment for additional information regarding the infection or biological hazard.

Trusted sources such as CDC, the World Health Organization (WHO), the Centers for Medicare and Medicaid Services (CMS), and federal and state licensing agencies should be used to gather and update data pertinent to the pandemic. This information is safety-critical and allows provider organizations and public health officials to adapt policies, procedures, and communication to meet changing conditions. Likewise, information from state licensing agencies should be consistently monitored for updated requirements and guidelines.

To help ensure continuity, the organization should consider assigning ongoing information monitoring roles to a specific position to help avoid lapses in information scanning that could seriously delay organization response and adaptation to changing situations. This assignment should be delegated through the organization’s central command function.

Internal and External Notification
Internal and external notification processes are also mission-critical for pandemic and outbreak response. Lapses in notification can lead to real harm for persons served, staff, the organization, and the greater community.

Internal notifications are care-critical and may include the following:

— Changing conditions
— Emerging hazards
— Modifications to internal policies and procedures
— Incidents and adverse events

An example of how internal notifications should be managed within the first 24 hours after an incident is included in Figure 2. Postincident Response Algorithm.

External notifications are also important. Local, state, and federal pandemic response guidelines often require reporting to various agencies and departments of health when persons present with signs and symptoms associated with an infectious outbreak, presumptive positive cases (local positive test), and confirmed positive cases (often determined by a second required test with positive results). These notifications are crucial for resident or patient transfers and for enhanced human resources management, staffing, and scheduling policies.

As part of ongoing pandemic and outbreak response operations, organizations should continually review both the design and performance of internal and external notification processes, amending them as necessary based on changing conditions.

Provision 2: Policies and Procedures
In an emergency such as a pandemic or outbreak, individuals and organizations will find themselves in nonroutine situations and will need to make quick decisions about how to proceed with care and daily operations. Policies and guidelines should be written to facilitate these decisions. In addition, hazard-specific
**Figure 2. Postincident Response Algorithm**

- **Report initiated by individual who discovers, witnesses, or is notified of event***
  - Attend to care, safety, and well-being of those involved
  - Conduct immediate internal notifications
    - Departmental supervisor and administrator
    - Risk manager
    - Other departmental managers as necessary
  - Conduct immediate external notifications
    - Attending physician
    - Family or responsible party
    - Authorities or agencies as applicable

- **Immediate notification**
  - Supervisor, department head

- **Risk/quality management (campus)**
  - Notification within 24 hours
  - Begin initial investigation
    - Gather basic facts about incident
    - Impound equipment
    - Tag out broken equipment
    - Implement immediate interim corrective measures
    - Make initial determination of severity
    - Complete, sign, and submit internal incident report
    - Continue initial investigation
    - Complete and submit required external incident report(s)

- **Corporate risk management**
  - Review and analyze incident report
  - Review initial investigation findings
  - Verify or modify severity determination
  - Facilitate ongoing internal notifications
    - Executive management
    - Quality assurance and performance improvement committee
    - Internal public relations and crisis communications
  - Conduct ongoing external notifications
    - Local legal counsel, as applicable
    - Licensing agencies
    - Insurers and claims management
    - Media, as applicable
    - Outside party (e.g., third-party investigator) if necessary
  - Monitor and, if needed, modify interim corrective measures
  - Establish ongoing communication plan
  - Verify incident reporting to applicable agencies
  - Conduct or participate in root-cause analysis
  - Implement performance improvement recommendations
  - Monitor new systems

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*Serious events reported immediately to supervisor or risk manager
policies and procedures should account for a variety of risks and contributing factors, including the following:

- The populations and vulnerabilities of persons being served by the provider or provider organization
- The types and scopes of services being provided
- The types of care and services that make up the delivery system, such as medical, surgical, skilled therapies, human and social, environmental, security, and dining
- Variations in delivery systems such as ambulatory, inpatient, and congregate living in association with care and services
- Levels of interaction with the general public and visitors

**Enhanced Infection Control Practices**

In addition to the standard precautions that providers adopt in their normal daily caregiving, infectious disease outbreaks such as the COVID-19 pandemic may necessitate enhanced practices that can include expanded use of personal protective equipment (PPE), changes in clinical care delivery, and changes to cleaning and disinfection practices.

**Personal Protective Equipment**

According to CDC, the recommended PPE when caring for a patient with known or suspected COVID-19 includes the following (CDC “Preparing”; CDC “Interim Infection Prevention”):

- **Respirator or facemask**
  - Put on a respirator or facemask (if a respirator is not available) before entry into the patient room or care area.
  - Use an N95 respirator or a respirator that offers a higher level of protection when performing or present for an aerosol-generating procedure.
  - Exit the room or care area and close the door before removing the respirator or facemask.
  - Discard disposable respirators or facemasks.
  - Perform hand hygiene.

- **Eye protection**
  - Put on eye protection (i.e., goggles, a disposable face shield that covers the front and sides of the face) upon entry to the patient room or care area. Personal eyeglasses and contact lenses are not considered adequate eye protection.
  - Remove eye protection before leaving the patient room or care area.

**RISK TIP**

Use reinforcement reminders to help institutionalize enhanced infection control practices. For example, see CDC’s printable “Stop the Spread of Germs” posters, available in English, Spanish, Simplified Chinese, and Vietnamese.

- Clean and disinfect reusable eye protection (e.g., goggles) according to manufacturer’s reprocessing instructions prior to reuse.
- Discard disposable eye protection after use.

- **Gloves**
  - Put on clean, nonsterile gloves upon entry into the patient room or care area.
  - Change gloves if they become torn or heavily contaminated.
  - Remove and discard gloves when leaving the patient room or care area, and immediately perform hand hygiene.

- **Gowns**
  - Put on a clean isolation gown upon entry into the patient room or care area.
  - Change the gown if it becomes soiled.
  - Remove and discard the gown in a dedicated container for waste or linen before leaving the patient room or care area.
  - Discard disposable gowns after use.
  - Launder cloth gowns after each use.
  - In case of shortages, prioritize gowns for:
    - Aerosol-generating procedures
    - Care activities where splashes and sprays are anticipated
    - High-contact patient care activities that provide opportunities for transfer of pathogens to the hands and clothing of healthcare personnel, such as:
      - Dressing
      - Bathing/showering
      - Transferring
• Providing hygiene
• Changing linens
• Changing briefs or assisting with toileting
• Device care or use
• Wound care

For additional guidance on specific PPE, see PPE Do's and Don’ts from the Association for Professionals in Infection Control and Epidemiology.

Clinical Care

Hand Hygiene

Pandemic and outbreak response procedures should include frequent education and surveillance of hand hygiene practices.

— Provide additional cues and reminders to help institutionalize evidence-based handwashing practices into daily operations each day and on every shift.
— Make alcohol-based sanitizer with 60% to 95% alcohol available in every resident room, other resident care and service areas, and common staff areas (e.g., staff stations).
— Enhance the frequency of housekeeping procedures at all handwashing locations to include disinfecting, restocking (e.g., soap, towels), and trash removal.

Respiratory Hygiene and Cough Etiquette

Respiratory hygiene and cough etiquette are also important considerations, especially when dealing with infections that are spread by bodily fluids and droplets.

— Provide additional cues and reminders to help institutionalize evidence-based respiratory hygiene practices into daily operations each day and on every shift.
— Consider the use of respiratory hygiene and cough etiquette kiosks at strategic locations.
— Make tissues and facemasks readily available for persons with a cough, as well as for staff with moderate- and high-risk profiles for exposure (see the discussion “Enhanced Procurement and Supply Chain Management” for more information on responding to supply shortages).
— Increase frequency of trash and waste removal and standardize procedures for removal as well as disinfection of trash receptacles. Enhanced practices are likely to generate increased volumes of potentially hazardous waste, and viruses and other infectious organisms will have varying lifespans depending on the surfaces where they are present.

RISK TIP

Use reinforcement reminders to help institutionalize enhanced identification and notification in changes in condition practices. For example, see CDC’s coronavirus-specific printable poster Symptoms of Coronavirus Disease 2019.

Identifying and Reporting Change in Condition

Pandemic and outbreak response policies and procedures should include practices to identify and communicate changes in resident, staff, and even visitor physical and mental conditions that match signs and symptoms associated with the infectious disease or biological agent. Because the presentation of these signs and symptoms can act as decision-making thresholds for other actions, timely identification and reporting play care-critical roles in many other response policies and guidelines. Policies and procedures should include an infection surveillance process.

Accurate information about what changes in condition to monitor for should be continuously communicated to all stakeholder groups. All persons should be instructed to immediately self-report any changes in physical or mental conditions at the time they notice them, along with the person to whom they should be reported. Staff should also be given the same information and instructions about reporting identified changes in condition while conducting their duties.

These responsibilities extend beyond direct care and licensed staff. In many instances, other service staff such as environmental services, dining services, and human services can be pivotal sentinels in timely identification of changes in condition.

Resident and Patient Admissions, Internal Transfers, and External Care Transitions

Pandemic and outbreak response policies and procedures should include amended preadmissions screenings to help identify those who have either tested positive for infections or present with signs and symptoms of illnesses associated with the pandemic.
In addition, providers should review their resident discharge and transfer summaries to ensure that infection-related information is accurate, complete, and prominently displayed for those receiving the person for admission and treatment into their facility.

*Caring for the Ill or Infected*

Assess the organization’s immediate capabilities for isolating and cohorting of residents into groups such as the following:

- Individuals who do not present with signs and symptoms
- Individuals who do present with signs and symptoms
- Individuals known to be infected

Cohorting of residents into categories allows provider organizations to tailor the delivery of services and infection control practices to care for those who are ill while also mitigating risks to other residents and staff. Cohorting also allows a provider to amend other practices such as enhanced staffing through dedicated assignments and to institute appropriate environmental control practices based on medically indicated needs. When bundled together, these practices strengthen infection prevention steps and can help with other efforts, such as management of PPE supplies.

Individuals and organizations should consistently use the terms “isolation” and “quarantine” as defined by CDC (“About Quarantine and Isolation”):

- **Isolation** separates sick people with a contagious disease from people who are not sick.
- **Quarantine** separates and restricts the movement of people who were exposed to a contagious disease to see if they become sick.

*Environmental Services: Enhanced Cleaning and Disinfecting Practices*

Provider organizations should enhance all environmental-related services including housekeeping, maintenance, laundry, and waste management to help control the spread of infection into the resident population, workforce, and community.

Outbreak response policies and procedures relating to environmental services must include considerations such as the means to disinfect and sterilize surfaces and equipment. In addition, the frequency of these practices needs to be amended as changes in other areas of the operation take effect. For example, increased handwashing can generate increased trash at handwashing stations, and therefore requires more frequent trash collection and storage.

*Dining Services*

While dining services and meal delivery are care-critical services, they can also pose special infection control risks and challenges depending on how the organization’s delivery systems are designed. Group mealtimes pose special threats regarding infection spread. Because meal delivery also moves in and out of many, if not all, parts of the building, it can also present risks for infections to be introduced into the workforce and to spread through the organization.

Organizations should include means to provide enhanced meal delivery during an outbreak or pandemic. Steps to take may include the following:

- Provide individual tray service in a resident’s room
- Provide PPE for staff who deliver and pick up trays
- Establish guidelines for tray delivery and pick-up to prevent spread of infection from room to room or unit to unit
- Provide necessary equipment for tray transport and delivery, considering sanitation and food temperature
- Follow cleaning and disinfecting procedures for trays, dishware, and flatware
- Evaluate the costs, benefits, and risks of reusable versus disposable dishware and flatware

Changes in meal delivery routine often require staffing changes as well. For instance, while tray delivery may be more efficient in terms of tray preparation, the processes for tray delivery and pick-up require more staff time.
Activities, Socializing, and Social Distancing

As described by the CDC, social distancing means remaining out of congregate settings, avoiding mass gatherings, and maintaining distance (approximately 6 feet or 2 meters) from others where possible (CDC “Interim US Guidance”). Social distancing depends on individuals and organizations modifying personal routines and behaviors based on essential and nonessential activities to decrease the risk of exposure, infection, and spread of infection. In some cases, governmentally enacted measures may mandate adherence. For example, CDC interim guidance recommends that nursing homes cancel all group activities and communal dining (CDC “Preparing”).

In the absence of local, state, and federally enacted guidelines, organizations must sometimes make their own decisions to prevent or manage infectious disease from entering their building or to control outbreaks from occurring or spreading within. While there are no hard-and-fast rules about group size or when to implement internally mandated measures, decision-making criteria can help, including the following:

- The vulnerability of persons being served by the provider organization
- The nature and scope of the infectious disease or biological agent
- The means by which the infectious agent spreads
- The length of time the infectious agent survives on surfaces
- The nature and types of various activities

By using basic risk identification and prioritization practices (see the Patient Safety Risk Score Calculator), organizations can implement decision-making algorithms to assist in enacting these measures.

Organizations should not forget about the mental health and well-being of persons served during times of pandemic and outbreak response. As information channels are flooded with information regarding infectious disease, response, and potential risks, anxiety and fear can have equally harmful effects on persons served.

Enhanced Visitor Management Practices

Security and Control: Entrance Management

Entrance and egress management into the organization’s building and between service line units is an important consideration to support other infection control and outbreak response practices, especially in regard to visitor and staff medical screenings, should an organization need to implement such measures during the pandemic and outbreak response. Special considerations for these practices should include the following:

- The number of points of entry into the building; for example, an organization may decide to close all points of entry except one or two (one for public, one for staff)
- Entrance staffing needs; consider 24 hours per day, 7 days per week
- Appropriate PPE for staff interacting with the public as part of their assigned job responsibilities
- Enhanced and more frequent cleaning and disinfecting for areas where the public enters the building
- Supplies for and signage encouraging hand hygiene upon entering and leaving the building
- Visitor sign-in practices; consider the means being used for visitor registration and the need for disinfecting surfaces to prevent the spread of infection; risks associated with discontinuing visitor sign-in should be carefully considered as security remains an important risk management practice as well, and sign-in information can provide important information for tracking exposed people or for proactively testing individuals who enter the building

Visitor Screening

Visitors can be a source for introducing infectious diseases, including COVID-19, into a healthcare facility. According to CDC, “Older patients and nursing home residents are particularly at risk. Therefore, healthcare facilities must enforce aggressive visitor screening and visiting restrictions to protect their patients and healthcare personnel” (CDC “Interim Additional Guidance”).

Screening should include the following:

- Upon arrival, ask about the visitor’s recent travel history and exposure to COVID-19, and evaluate the patient for respiratory symptoms, including fever and cough.
- Require that a visitor return home if he or she exhibits symptoms of infection, has traveled to areas that are designated by CDC as warning level 3, or has potential exposure to COVID-19.

Remember to post information at facility entrance areas and on the facility’s website about screening procedures and advise visitors that extra time may be needed for screening.
As conditions change during the pandemic, provider organizations may face the need to restrict or discontinue visits from members of the public. State or local authorities may impose restrictions or requirements. For example, on March 16, 2020, the Massachusetts Commissioner of Public Health ordered all Massachusetts hospitals to implement visitation policies urging deferral of potential visitors, requiring all those who do visit to perform hand hygiene and remain six feet away from patients, and requiring visitors to leave after 15 minutes. (Commonwealth of Massachusetts)

The organization should specify who are essential visitors (i.e., those who directly affect the health and welfare of others or are critical to continuity of care and business delivery) and who are nonessential.

The recommendations below describe specific recommendations for the COVID-19 pandemic and may be useful as guidance for future outbreaks or pandemics.

**Hospitals**

CDC recommends that healthcare facilities establish procedures for monitoring, managing, and training visitors, including the following (CDC “Interim Infection Prevention”):

— **Measures for all visitors**
  - Passively screen all visitors (e.g., with signage) prior to entry
  - Inform visitors about PPE use according to current facility visitor policy
  - Set the expectation for frequent hand hygiene and adherence to respiratory hygiene and cough etiquette precautions
  - Actively screen and limit visitors for the most vulnerable patients (e.g., oncology and transplant wards)

— **Measures for visitors to patients with known or suspected COVID-19 infection**
  - Limit visitors
  - Encourage alternate means (e.g., video calls) for patient-visitor interactions
  - Evaluate potential visitors’ health and ability to comply with precautions
  - Provide instruction—before visitors enter patients’ rooms—on hand hygiene, limiting surfaces touched, and use of PPE according to current facility policy while in the patient’s room

— **Additional considerations during periods of community transmission**
  - Assess all visitors for fever and respiratory symptoms prior to entry
  - Deny entry if fever or respiratory symptoms are present
  - Determine thresholds for screening, escalation from passive to active screening, and restriction of all visitors
  - Consider exceptions to an all-visitor restriction (e.g., end-of-life situations)

Hospitals are continually evaluating their visitor policies and increasingly setting in place prohibitions on any visitors unless a patient’s care team permits exceptions, such as to the following areas:

— **Maternity unit**
— **Pediatric unit**
— **End-of-life care**

When exceptions are allowed, the hospital should limit the number of visitors, preferably to no more than one visitor for maternity and pediatric patients. Some hospitals are further limiting the number of visitors that non-COVID-19 patients can receive to one healthy adult visitor (over 18 years of age) per day. Individuals accompanying patients seeking emergency care should be directed to remain in their vehicle or in designated locations where they can keep social distance from others. Before allowing the support person to go to the designated area, hospitals must follow their screening procedures for visitors.

**RISK TIP**

Because visitor screening for clinical signs and symptoms may be a nonroutine activity for assigned staff, an algorithm can assist in determining the appropriate actions to take. An example visitor screening algorithm is available on page 5 of Massachusetts General Hospital’s 2019 Novel Coronavirus Toolkit.
Nursing Facilities

CDC ("Interim Additional Guidance") recommends that nursing facilities restrict all visitation except for certain compassionate care circumstances, such as end-of-life situations. CDC provides the following recommendations to nursing facilities (CDC “Preparing”):

— Send letters or emails to families advising them that no visitors will be allowed in the facility except for certain compassionate care situations, such as end-of-life situations.
— Facilitate alternative methods for visitation (e.g., video conferencing).
— Post signs at the entrances to the facility advising that no visitors may enter the facility.

Decisions about allowing visitors during an end-of-life situation “should be made on a case-by-case basis,” says CDC. In these cases, the facility must enforce careful screening of the visitor for fever or respiratory symptoms and prohibit anyone with symptoms from entering the facility. Visitors who are permitted in the building must wear a facemask and restrict their visits to the resident’s room or other areas designated by the facility. Visitors should be reminded to frequently perform hand hygiene. (CDC “Interim Additional Guidance”)

Assisted and Independent Living

Continuing care communities with residents in independent living and assisted living are also enforcing visitor restrictions, along with nursing facilities. An outbreak of COVID-19 in a New Orleans retirement community with residents in independent and assisted living has given other continuing care retirement communities reason to restrict their visitor policies. (KATC)

The American Health Care Association/National Center for Assisted Living advises assisted living facilities to evaluate their visitation policies. While recognizing that visitor entry may be needed for immediate family members for hospice-related visits or for other sensitive reasons, the association recommends that alternative methods of communication be offered and that facilities follow the CDC’s guidance to prevent the entry of COVID-19 into their facilities.

Enhanced Staffing and Scheduling

Pandemics and outbreaks within an organization or the greater community can have many harmful effects on continuity of care and services. Surges in the volume and acuity of care can stretch human resources beyond safe limits and capabilities. The spread of infection into the workforce can quickly diminish the human resources an organization has available to deliver care and services. Depending on their responsibilities, some staff carry the risks of constant exposure to those who are infected. Furthermore, staff face the same needs, challenges, anxieties, and fears experienced by the general public at home, while also being expected to execute their duties and care for others within the healthcare system. Because of these and other factors, an organization’s human resources function is critical in continuity of care, services, and business functions. Protecting the health and welfare of staff is therefore a mission-critical part of the operations.

Risk-Exposure Profiles

Establishing and updating risk-exposure profiles can help organizations to establish criteria and make timely decisions about sick policies and when measures such as quarantine, isolation, and return to work can occur. See the County of Santa Clara (California) Public Health Department’s Healthcare Personnel COVID-19 Screening Algorithm for one example of a decision-making tool.

Essential Versus Nonessential Direct Care and Services

Staffing and scheduling involve the determination of which staff are essential and which are nonessential as these decisions relate to the delivery and quality of care and services provided to persons served and to the continuity of business functions necessary to maintain said delivery.

In making determinations about which functions are essential to the health and well-being of persons served and staff, consideration should include the following:

— The organization’s overall capabilities for staff to work from home (remotely)

Temperature screening programs are being touted to identify potentially infected visitors and staff, but using infrared (IR) scanning devices, either alone or with a questionnaire, for mass screening is ineffective, according to an ECRI Clinical Evidence Assessment.
The role that each job category plays in terms of care delivery, coordination, and business continuity

Risks posed by the spread of infection through the organization’s workforce versus potential losses in productivity if the functions are fulfilled offsite

Staff Screening
Depending on circumstances, providers and provider organizations may choose to institute staff screening for changes in condition, signs, and symptoms when each person reports to work to begin his or her shift. Such screening may also be mandated by local, county, state, or federal guidelines.

Staff screening should follow similar guidelines as visitor screening with regard to signs and symptoms to be monitored and whom to notify of a change in status. Staff who present with signs and symptoms of the infection should stay home and take the necessary treatment steps. In addition, staff who feel ill or begin to experience signs and symptoms while on duty should be evaluated immediately and sent home or to seek medical care, as appropriate.

Assigned Schedules and Assignments
As capabilities permit, organizations should consider consistent scheduling and care assignment when outbreak response measures are enacted. These practices not only help to inhibit the spread of infection, they also create an environment that encourages established and enhanced care delivery practices to become more routine for staff. This can promote environments that foster continuity of care through teamwork, a shared sense of purpose, and enhanced communications, care delivery, safety, and care coordination.

Acuity- and Competency-Based Staffing
Acuity- and competency-based staffing are important practices in pandemic and outbreak response. When staff competencies do not fully match patient acuity needs, the possibility of harm to those served and staff can increase. Additionally, if staff are not versed in proper infection control techniques and use of PPE, they may be more likely to inadvertently spread infection to other areas of the organization, among the workforce, or to their home and community.

If surges in patient care or diminished workforce require the use of personnel not typically versed in infection control techniques and use of PPE, it is incumbent on the organization to provide training and monitoring of use. Otherwise, a cycle of additionally and increasingly harmful circumstances can develop.

Volunteers
To limit exposure, the CDC recommends restriction of all volunteers and nonessential healthcare personnel (e.g., barbers). (CDC “Preparing”)

Enhanced Procurement and Supply Chain Management
In a March 2020 ECRI survey of providers, more than 90% of respondents reported that they were experiencing supply shortages primarily in PPE categories, including N95 respirators, surgical masks, gowns, and disinfecting wipes. The list of categories is anticipated to grow rapidly as the number of infected patients increases and countries worldwide begin to restrict export of PPE products. In addition to shortages of inventories from manufacturers and distributors, 80% of respondents reported that they were experiencing higher than normal shrinkage rates within the corresponding supply categories.

To help navigate shortages of both supplies and capital equipment, providers reported that they have been working successfully with manufacturers and distributors for guidance on inventories. They are also relying on partnerships with independent third parties such as ECRI who can provide a complete overview of every available product alternative available in the U.S. marketplace irrespective of group purchasing organization agreements or distributor relationship. ECRI currently provides automated functional equivalents and alternatives on more than 173 product categories, including the following PPE categories:

- Exam gloves
- Disinfecting wipes
- Isolation gowns
- Intravenous solutions
- Air-purifying respirators (N95)
- Shoe masks
- Surgical mask

ECRI also provides on-demand support for all remaining supply categories.

Top products and alternatives in each of the above categories can be located on the ECRI COVID-19 Resource Center website.
Organizations navigating supply shortages on their own must carefully compare availability, price, and most importantly key performance indicators (KPIs). Key factors to examine when selecting an N95 respirator are listed below. ECRI is also currently researching inventory levels, whether new customers are being accepted, and country of origin on select product categories for member organizations.

N95 respirator considerations include the following:

- The most important KPIs identified in choosing an N95 respirator are their indication for surgical use and size. N95 respirators indicated for surgical use are regulated by the U.S. Food and Drug Administration to prevent the spreading of bodily fluids and particulate matter from person to person.
- While N95 respirators come in specific sizes or one-size-fits-all, any N95 respirator must be fit-tested for each individual wearer to ensure protection.
- Surgical N95 respirators must be fluid-resistant and cannot have an exhalation valve. Fluid resistance implies that the respirator has been tested according to the ASTM standard, or a comparable test.
- Clinicians may have specific preferences for the shape of the N95 respirator; they can be molded or have a cup, flat fold, or duckbill shape.
- N95 respirators may be marketed as being latex-free for clinicians with latex sensitivities or allergies.
- Consider whether the N95 respirators can be worn with safety eyewear for protection from COVID-19.

Supply Shortages

Surge capacity is “the ability to manage a sudden, unexpected increase in patient volume that would otherwise severely challenge or exceed the present capacity of a facility” (CDC “Strategies”). There is no precise definition for when an organization moves from its normal daily capacity to surge capacity. Nonetheless, organizations can anticipate surges during pandemics like COVID-19 and can likewise anticipate that surges will lead to decreases in PPE supplies. CDC uses three categories to describe levels of patient surge, which can also be used to help prioritize measures to conserve eye protection supplies (CDC “Strategies”):

- Conventional capacity: Measures consist of providing patient care without any change in daily contemporary practices. This set of measures, consisting of engineering, administrative, and [PPE] controls should already be implemented in general infection prevention and control plans in healthcare settings.
- Contingency capacity: Measures may change daily standard practices but may not have any significant impact on the care delivered to the patient or the safety of healthcare personnel. …These practices may be used temporarily during periods of expected PPE shortages.
- Crisis capacity: Strategies that are not commensurate with U.S. standards of care. These measures, or a combination of these measures, may need to be considered during periods of known PPE shortages. (CDC “Strategies”)

PPE

The healthcare supply of PPE is an important focus in epidemic and response plans. Insufficient availability and replenishment rates of all types of PPE and other care-critical supplies can quickly have negative effects on continuity and quality of care. Shortages can also create care environments where the spread of infection and additional harm to persons served and staff are more likely to occur.

Pandemic and outbreak response procedures should include the means to obtain, manage, monitor, and replenish care-critical supplies. This also includes understanding the specifications and capabilities of various types of equipment that are recommended for use in specific situations and the effectiveness of that equipment to protect users under the circumstances posed by the infectious threat.

Technology and Health Devices

Telehealth and Telemedicine

Telehealth remote patient-monitoring systems are intended to enable monitoring of patients at home. They are mainly used to manage patient populations with chronic diseases to reduce hospital readmissions but may offer a bridge-to-home for patients who are well enough to self-quarantine at home with limited monitoring. These systems combine established monitoring technologies (e.g., blood glucose meters, blood pressure monitors) with analysis software and cellular technology. Patient-end software allows a mobile device to collect data from the physiologic measurement devices and transmit the data to clinician-end analysis software, which analyzes the data to identify potential deterioration in the patient’s condition.
Deployment of these technologies, normally intended to support individuals with chronic conditions, may permit routine monitoring of patients under self-quarantine at home if the parameters monitored are meaningful for the target population. However, these systems are not intended to identify or alert for emergent conditions, and organizations should ensure that patients are instructed to utilize emergency services (e.g., 911) instead.

The following tips from CDC should be considered to promote increased use of telehealth (CDC “Interim Guidance”):

— Healthcare facilities can increase the use of telephone management and other remote methods of triaging, assessing, and caring for all patients to decrease the volume of persons seeking care in facilities.
— If a formal “telehealth” system is not available, healthcare providers can still communicate with patients by telephone (instead of visits), reducing the number of those who seek face-to-face care.
— Health plans, healthcare systems, and insurers/payers should message beneficiaries to promote the availability of covered telehealth, telemedicine, or nurse advice line services.

Disinfecting and Sterilization

Facilities are taking a two-pronged approach to reducing the spread of pathogens: (1) properly cleaning and disinfecting capital equipment per policy and (2) using infection reduction technologies to support infection reduction practices and policies.

Cleaning (the removal of soil) and disinfection (the killing of pathogens) are critical steps in reprocessing equipment between uses or between patients, and ECRI has compiled disinfectant concentrations and contact times listed by the Environmental Protection Agency to kill SARS-CoV-2, the virus that causes COVID-19. However, the use of cleaning agents that are incompatible with the devices being cleaned, as well as the use of incorrect cleaning techniques, can damage devices and may eventually result in serious device malfunctions such as overinfusion of medication, excessive alarms, device errors, and unexpected equipment failure.

Healthcare facilities can take several steps to address the risks, including the following:

— Recognize that no single cleaner or cleaning process will work with all devices
— Review manufacturer recommendations for appropriate cleaners and cleaning procedures
— Make the recommended cleaners and procedures accessible to staff

In addition, facilities should communicate any changes in recommended procedures to staff and update guidance materials as needed; reconfirm that the appropriate cleaners and methods are being used during device inspection and maintenance; and provide regular staff instruction on proper cleaners and techniques. The facility should also consider stocking replacement parts and ensure that sufficient PPE and safe workspaces are available for biomedical and clinical engineering staff responsible for servicing equipment that may be contaminated.

Infection reduction technologies are designed to reduce healthcare-associated infections (HAIs), including those contracted by staff. These technologies include systems that electronically monitor clinicians’ hand hygiene and devices that clean, disinfect, or sterilize medical equipment or other devices used in a clinical environment (e.g., mobile phones, tablets). Infection reduction technologies relevant to outbreak response include the following:

1. Disinfectant wipes, which are used to disinfect medical equipment and patient surroundings. Active ingredients for those tested by ECRI are quaternary ammonia compounds (sometimes called quats), hydrogen peroxide, and sodium hypochlorite (bleach). Compatibility with the equipment to be disinfected is key, as is the wipes’ ability to kill the pathogen of concern.

2. Ultraviolet (UV) room disinfection devices, which are designed to reduce HAIs. UV room disinfection devices are typically used by environmental services staff to supplement other cleaning and disinfection processes in patient rooms, patient bathrooms, and operating rooms. Although UV disinfection technology has been used to treat air and drinking water for several decades, the use of UV room disinfection devices in healthcare facilities is a relatively recent development. These systems typically include a UV lamp, and an integrated or remote controller, which the operator uses to initiate and track the treatment cycle.

3. Countertop UV disinfection devices, which deliver UV-C light to disinfect user- or facility-owned mobile devices (e.g., phones, tablets) that may be susceptible to damage
by chemical disinfection methods (e.g., 70% isopropyl alcohol, bleach, other disinfectants). Surfaces must be properly cleaned (debris removed) before use, because UV light cannot penetrate soil, and users should be aware that UV light has been shown to degrade some plastics and polymers with repeated exposure.

4. Hydrogen peroxide (H₂O₂) disinfection systems, which deliver a vaporized hydrogen peroxide mist. While these systems do not have the same issues with shadowing as UV units, the vapor is hazardous to humans and enough time needs to be provided for the vapor to abate before the treated room can be utilized.

5. Hand hygiene compliance-monitoring systems (HHCMSs), and hand hygiene observation (HHO) apps are used to monitor hand hygiene compliance. HHCMSs utilize tags worn by caregivers to monitor their interaction with patients and handwashing stations, while HHO apps are utilized by trained observers to perform “secret shopper” observations of real-life activity during designated observation periods. (WHO)

**Provision 3: Communication Plans**

Disasters can have significant health impacts on communities and their residents. Effective communication is a key component to properly manage and respond to an incident of any magnitude. Communication includes providing the public with information through verbal, written, or symbolic means. As the world has watched the spread of COVID-19, medical professionals trained in risk communications are working to release timely and effective messages providing public awareness and other important information. Clear, concise messages provided by trusted leaders before, during, and after an incident can help patients and residents feel more in control and persuade them to make important health-related decisions to help ensure their safety.

To ensure the continuity of all communication provided internally and externally, the organization should designate an official, such as the organization’s chief executive officer or its chief medical officer, to deliver information and updates. The organization’s emergency preparedness plan can help guide its protocols for communicating with its staff, patients and residents, visitors, board members, and its community, including other healthcare facilities in its service area.

**Resident, Patient, and Family Member Communications**

Healthcare organizations must carefully consider the information needs of their patients and residents receiving care at the facility during the COVID-19 pandemic. Too much information can overwhelm people; too little information can hamper their ability to cooperate with the facility’s pandemic response. Effective communication should address patients’ and residents’ concerns and can enhance their compliance with visitor restrictions, infection control, and other necessary policies.

CDC recommends the following (CDC “Steps”):

- Communicate about COVID-19 with your patients.
- Provide updates about changes to your policies regarding appointments, providing nonurgent patient care by telephone, and visitors. Consider using your facility’s website or social media pages to share updates.

Anthony Fauci, MD, director of the National Institute of Allergy and Infectious Diseases, recommends a multifaceted approach when discussing COVID-19 with patients:

1. First, he recommends, give patients the “broad picture” of the situation, acknowledging risk variables such as location and underlying conditions, without placing “the burden of the broader global health issue” on the individual patient.

2. Second, provide patient-specific recommendations for hygiene and social distancing.

3. Third, instruct patients who are at higher risk—or who live with someone who is—to “almost . . . act like you yourself are infected” in order to increase protection.

4. Finally, instruct patients that “without panicking and without making it dominate your life . . . act differently like you’ve never acted before. You’ve really got to be socially distant.” (New England Journal of Medicine)

**Board and Staff Communications**

**Staff Communication**

A healthcare facility’s effective response to the coronavirus pandemic depends on the dedication and cooperation of every member of its staff—from the receptionist at the front desk or in the lobby, to the nurses and doctors and other caregivers on the frontline of care delivery, to the chief executive
officer overseeing a system stretched to its limits. Staff need assurance that the organization prioritizes their health and safety. Regular communication with staff is essential. Workers may be unwilling to report to work if they do not feel safe. Important information to convey to staff includes the following:

- Measures to protect staff with PPE
- Back-up protocols when PPE supplies are limited or exhausted
- Provisions for childcare if it is available
- Availability of services for psychological support
- Procedures to follow when a staff member becomes ill
- Contingency plans for medical surge capacity
- Measures to recruit and transition staff to high-need care areas if staff shortages occur

**Board Communication**

Whether serving on a board of a for-profit or nonprofit healthcare organization, members of governing boards are challenged to carry out their duties of stewardship in a rapidly changing environment, such as that created by the COVID-19 pandemic. Often, governing boards may include influential community business owners, physicians, and individuals whose education, training, and experience are of vital importance to the organization. The organization’s chief executive officer should frequently update its board members on the organization’s response to the pandemic and its impact on the organization’s resources. Board members may be able to provide additional guidance and identify other community resources to help with the organization’s response.

**Visitor Communications**

Healthcare facilities must clearly spell out their expectations for visitors (e.g., following hand hygiene protocol, restricting access to visitors with fever or respiratory symptoms) as organizations respond to the coronavirus pandemic. Many facilities have needed to frequently revise their visitor policies as their response intensifies.

To keep visitors informed of the most current visitation policy, facilities should use the following strategies to communicate the policy:

- Post signs at entrance areas outlining visitor restrictions.
- Use social media to communicate information about visitor restrictions.

- Keep the organization’s website up to date with the most current visitor policy.
- Keep staff informed of the organization’s current visitor restrictions and on procedures to follow if a visitor is refusing to comply with the policy.

Healthcare organizations can also use their visitor policies to communicate important tips to prevent the spread of the coronavirus and other strategies to help individuals cope.

**Public Relations**

The organization’s communications plan must identify information that should be communicated to the public and identify methods to share the information, such as periodic briefings provided by the organization’s spokesperson, posting the information on the organization’s website, and sharing the information through social media. WHO recommends that organizations address the following in communicating with the public:

- Describe what information the public needs to know, such as general updates on facility preparedness and response and measures to reduce the public’s risks and limit the spread of COVID-19.
- Describe how individuals can access the organization’s and other community services for COVID-19 testing, treatment, and other related services.
- Determine how the organization will coordinate with local and state agencies and other healthcare providers in the sharing of information with the public.
- Assign an organization spokesperson to communicate with the public.

**Media and Crisis Communications**

Knowing when to communicate during a crisis or emergency is just as important as knowing what to communicate. A crisis communication protocol is an outline for what should be communicated, by whom, and when, during an emergency. It is the timeline for the implementation of the organization’s crisis and emergency risk communication plan.

When developing the crisis communication protocol, the organization should be sure to match specific tasks (i.e., drafting the initial press statement, distributing the statement, activating the crisis website, recording hotline messages) with members of the crisis team. Be sure to consider
the organization’s approval processes for communications as part of the overall timeline.

The crisis communication protocol and the crisis and emergency risk communication plan will both be needed when the emergency response system is activated. Keeping these documents together in the same file online and then printed out as needed when the response system is activated is advised.

**RISK TIP**

A media advisory or crisis communication memo should be brief and should contain important information such as who, what, when, where, and why.

**ECRI Resources* Available to Aging Services Risk Management Members**

**Guidance Articles**
- Emergency Preparedness: Planning and Mitigation
- Emergency Preparedness: Response and Recovery
- Employing Temporary and Agency Staff
- Occupational Health and Safety
- Hand Hygiene
- High-Profile Infections
- Overview of Infection Prevention and Control

**Focus On Toolkits**
- Focus On . . . Emergency Preparedness and Response
- Focus On . . . Occupational Health and Safety Programs
- Focus On . . . Hand Hygiene

**Training Program**
- Hand Hygiene Training Program

*Some ECRI resources are publicly available. To obtain other ECRI reports, contact us at clientservices@ecri.org.
References


Centers for Disease Control and Prevention (CDC):


About ECRI

ECRI is an independent, nonprofit organization improving the safety, quality, and cost-effectiveness of care across all healthcare settings. With a focus on patient safety, evidence-based medicine, and health technology decision solutions, ECRI is the trusted expert for healthcare leaders and agencies worldwide. The Institute for Safe Medication Practices (ISMP) is an ECRI affiliate. Visit ecri.org and follow @ECRI_Org.