

FRONTLINE HOSPITAL PLANNING GUIDE: SPECIAL PATHOGENS

JUNE 2019





SPECIAL PATHOGENS PROGRAM **Background:** NYC Health + Hospitals is the largest municipal healthcare delivery system in the United States, providing essential inpatient, outpatient, and home-based services to more than one million New Yorkers every year in more than 70 locations across the city's five boroughs. With our unique experiences in responding to emerging, re-emerging, and high consequence infectious disease incidents, including safely and successfully treating NYC's single, confirmed case of Ebola virus disease and numerous persons under investigation, we understand first-hand the myriad impacts infectious disease threats and special pathogens events have on healthcare delivery.

With the increasing demand for preparedness for and responses to the world's emerging public health threats, this planning guide breaks new ground and leads the way as a distinctive domestic resource for healthcare delivery systems to customize their plans specific to their unique clinical, operational, and financial needs.

Purpose and Audience:

All hospitals must be prepared to identify and isolate a patient presenting with a suspected special pathogen infection (i.e., one that is particularly virulent and requires care processes and personal protective equipment beyond daily infection control practices) and inform internal and external stakeholders. This document provides high level planning guidance for a frontline hospital multidisciplinary team (e.g., emergency management, infection prevention and control, emergency department, inpatient care, safety, public relations, and infectious disease, depending on the resources and role of the facility in the community) to support planning and training for the provision of initial care to such patients while determining whether and when the patient will be transferred to another facility for further assessment and treatment. Though the target audience is frontline hospitals, other facilities may find information that is applicable to their planning. The information in this planning guide is neither presented as a complete and stand-alone resource for special pathogen management nor is it intended as a universal document for all staff within an entire hospital. It aims to serve as a high level "jumping-off point" to be supplemented by the most current pathogen-specific guidance and customized to meet facility needs.

Scope:

This document is NOT intended for facilities managing patients confirmed to have a viral hemorrhagic fever or special respiratory pathogen. Rather, this planning guide is designed to assist frontline hospitals to develop systems and provide training to screen for special pathogen infectious diseases and effectively identify, isolate, and inform when a case is suspected, and safely manage patients until diagnosis, transfer, or release. In certain circumstances, patients may require further intervention or invasive procedures based on clinical status or may be at frontline hospitals longer than 24 hours. Hospitals should always consult with public health officials to ascertain risk and to obtain the most current information available including their state and local health departments, the Centers for Disease Control and Prevention (CDC), and other sources to assure their practices and knowledge are current.

The planning guide format provides an overview of the issues that should be addressed as well as planning considerations for specific topics, particularly when such information is not easily accessible from other sources. Much more detailed guidance on infection control for specific pathogens as well as personal protective equipment and other topics is available and is referenced and linked throughout the document for use in planning by those personnel who need more specific information. Frontline facilities are varied, from critical access hospitals to major metropolitan medical centers, and depending on the regional resources and systems the frontline facility may have to simply recognize a suspect case and transfer them, or provide patient care for days at a time awaiting confirmatory testing prior to patient movement. This planning guide attempts to provide high level resources for the full spectrum of care and must be tailored to the specifics of the facility.

Notes and Caveats:

This document was created by subject matter experts using official or best practice information taken from multiple organizations that was vetted and assembled by NYC Health + Hospitals. This document does not constitute official policies or viewpoints of any government agency, including NYC Health + Hospitals.

The information contained in this planning guide is intended as a **planning** resource and should be incorporated in plans and procedures developed by frontline hospitals.

The authors take no responsibility and bear no liability for any clinical care outcomes, provider injury/illness, or inaccuracies in or resulting from this document. All content was current at the time of publication and vetted to the best of our ability.

Inclusion of specific references and resources is offered as an acknowledgement of their contribution of material and to identify sources of additional information, but it does not constitute endorsement or vouch for the accuracy or applicability of the referenced documents.

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ASSUMPTIONS

- The hospital has an infection prevention and control program and respiratory protection program including use of N95 respirators. The hospital routinely applies standard and transmission-based precautions for patients presenting with infectious diseases (e.g., chicken pox, influenza).
- Once a special pathogen case is diagnosed, the hospital applies transmission-based precautions and follows current diseasespecific guidance.
- During known special pathogen outbreaks when there is a greater risk of cases presenting in the U.S., frontline facilities maintain awareness of current disease-specific guidance and prepare their staff to implement it.
- Special pathogens to be planned for include biosafety level 4 (BSL-4) agents with possible person-to-person transmission and other highly hazardous communicable pathogens.

Special pathogens are those that:

- are associated with high morbidity and/or *mortality;*
- have a high likelihood of secondary cases (person-to-person spread);
- lack an effective vaccine, prophylaxis, or treatment and
- might prompt the use of a biocontainment unit due to clinical or public health concerns.

Special pathogens pose a significant risk to healthcare personnel and require specific healthcare facility processes to ensure early identification and isolation of infected patients and the use of effective infection control practices to prevent disease transmission while the patient is further evaluated.

This document concentrates on suspect viral hemorrhagic fever (VHF) and special respiratory pathogens (e.g., severe acute respiratory syndrome [SARS], Middle East Respiratory Syndrome Coronavirus [MERS-CoV], novel influenza); however, other pathogens such as poxviruses can also be managed within the framework. The example screening personal protective equipment (PPE) ensemble, Special Pathogen Basic PPE, described in Figure 1 can be suitable for screening and initial management of all special pathogens aside from suspected VHF in a patient who is unstable or exhibits vomiting, diarrhea, or bleeding.

 Travel-associated and emerging/re-emerging diseases (e.g., Ebola virus disease [EVD], Lassa fever, and MERS) can present at any time to any facility at any stage of illness, though some facilities are at higher



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risk than others due to population demographics and proximity to airports and other points of entry. Sporadic cases may occur, but it is unlikely that triage personnel would recognize these based on nonspecific symptoms. As part of a <u>tiered, regional system</u>¹ established for the management of patients with EVD and other special pathogens, frontline hospitals should be able to:

- Implement the "identify, isolate, and inform" strategy including timely triage, initial evaluation, and initial clinical management.
- \circ Initiate appropriate infection control protocols for the suspect case.
- Rapidly inform internal (e.g., infection prevention staff) and external (e.g., state or local health officials) stakeholders of a suspect case.
- \circ Provide enough PPE for healthcare workers (HCWs) for at least 24 hours of care.
- Coordinate safe transfer of the suspect case to a designated assessment hospital or state or regional Ebola and special pathogen treatment center, as needed according to the regional plan.
- Have staff available who have been appropriately trained and have documented competency in safe PPE practices.
- Manage critically ill patients who may require intubation and other high-level care until diagnosis of a special pathogen is either confirmed, ruled out, or the patient is transferred in accordance with the Emergency Medical Treatment and Labor Act (<u>EMTALA</u>).
- Have a plan to safely manage waste disposal, cleaning, and disinfection with the support of response partners and vendors, as needed.
- Frontline facilities vary greatly from critical access hospitals to major tertiary care centers. All facilities must have the ability to identify, isolate, and inform regarding a special pathogen case and have plans in place to provide appropriate care while awaiting transfer. The information in this document reflects a wide range of capabilities and should be adapted to the facility and community.
- Frontline hospitals have a clearly written procedure for how to contact consultation resources and referral facilities and how to collect, process, and transport possible special pathogen specimens including VHF and unusual respiratory pathogens. This plan is used to help guide PPE stocking, laboratory responsibilities, supplies, and staffing and training required.
- Refer to <u>Surge Incidents</u> for multiple patient presentations.

¹ The U.S. Department of Health and Human Services developed a nationwide, regional treatment network for Ebola and other special pathogens. The network includes: 10 Regional Ebola and Other Special Pathogen Treatment Centers with enhanced capacity to care for such patients; 63 state or jurisdiction Ebola Treatment Centers that can safely care for patients based on clinical judgment, resources, and patient preference and if the capacity of the Regional Centers is exceeded; 217 assessment hospitals that can isolate and care for patients until their diagnosis is confirmed/ruled out or they are discharged or transferred; and more than 4,800 frontline facilities that can identify, isolate, and care for patients until they are transferred to a higher tier. Additional information about the tiered system may be found in <u>Regional Treatment Network for Ebola and Other Special Pathogens</u>.







PPE ASSUMPTIONS

Transmission-based precautions, the second tier of basic infection control, supplement standard precautions for patients with suspected or confirmed infection or colonization of certain infectious agents or epidemiologically important pathogens. PPE ideally is selected by transmission-based precautions that match a specific pathogen to a level of protection. Table 1 shows types of precautions and associated PPE.

Type of Precautions	PPE				
Standard	gloves, gown, simple mask ¹ , goggles or face shield (exact ensemble determined by the type of clinical interaction with the patient and patient signs and symptoms) ^{2,3}				
Contact	fluid-resistant gown, gloves ²				
Droplet	simple mask, eye protection (eye protection not required but recommended by most sources) ²				
Airborne	fit-tested N95 or equivalent/higher respirator or powered air-purifying respirator (PAPR) ^{2,4}				

Table 1. PPE by Type of Precautions.

Other factors that influence PPE selection:

- Anticipated exposure (e.g., splashes, spray touch, large volumes of body fluids, and isolation precautions)
- Durability and appropriateness for the task
- Fit⁵

¹ "Simple mask" is used throughout this document to refer to a flexible, half-face filtering facepiece, often referred to as a simple mask, procedure mask, or surgical mask. It is distinct from the N95 respirator or PAPR that require specific National Institute for Occupational Safety and Health (NIOSH) approvals and testing of filtration capability.

² <u>Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007)</u>

³ Standard Precautions in Health Care



⁴ PAPR in this document refers to a PAPR that is equipped with appropriate N95 or higher filters.

⁵ Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings



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Special pathogens require a combination of precautions. For example, MERS, SARS, and novel influenza require a combination of airborne and contact precautions plus eye protection. Though there are distinctions among the PPE ensembles needed for each pathogen, during the *identification* or *screening* phase, this document assumes that simplicity is best for frontline providers dealing with a suspect special pathogen case. Hospitals may elect to adopt other PPE postures at their discretion due to preference, training, supply consistency, state occupational safety and health requirements, or other factors. Hospitals should consider their role in the community, their resources, current PPE practices and materials, the anticipated time until transfer of a suspect special pathogen case, and their emergency department provider types and patient flow/movement (e.g., who encounters the patient first, when are the screening questions asked, etc.) when considering levels, types, and training for PPE.

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The multiple recommendations for PPE for different special respiratory pathogens and viral hemorrhagic fevers (persons under investigation, clinically stable, and unstable or exhibiting vomiting, diarrhea, or bleeding) do not lend themselves to simplicity for the initial encountering and assessing provider. The subject matter expert authors of this document have elected to recommend PPE for the initial assessment and evaluation of all suspected special pathogen patients that may be excessive for a specific condition (e.g., two pairs of gloves for a respiratory pathogen, N95 respirator for stable potential EVD/VHF patient) but cannot be safely omitted for another special pathogen. This does, however, create a single initial set of PPE for simplicity and consistency. Hospitals may reasonably decide to adopt more specific screening-based PPE ensembles than the ones presented here.

Following initial assessment, the clinical and infectious disease/infection prevention and control staff should discuss any necessary changes to the Special Pathogen Basic PPE ensemble. If a VHF is suspected and the patient is stable and there is no bodily fluid exposure risk at present, the facility may appropriately elect to stay with the Special Pathogen Basic ensemble. However, many facilities assume that the patient could develop vomiting, diarrhea, bleeding, or become unstable at any time and therefore elect to adopt VHF PPE for these situations. We use this assumption in the planning guide understanding that this exceeds current CDC recommended levels of protection. Providers and facilities should understand the increased heat stress, mobility impairment, and other potential risks that can accompany higher levels of PPE and consider these trade-offs in their decision-making.

Finally, note that the recommendation for the suspect case patient to wear a simple mask and for the provider to wear an N95 respirator may in the end not be indicated, but creating an expectation for consistent procedures dictates that one simple process be followed unless an epidemic/outbreak requires just-in-time training and specific process deviations. Figure 1 describes the sample PPE ensembles that will be referred to throughout this planning guide.

Early consultation with infection control and prevention and infectious disease experts can assist in tailoring precautions to transmission-based as a diagnosis is established.





Figure 1. Sample PPE Use When a Patient with Suspected Special Pathogen is Identified.



Once a patient has been isolated, nursing and physician staff will confer and, depending on the suspected disease based on the travel/exposure history and any additional epidemiological factors, will choose a PPE ensemble. This PPE should ideally be packaged in kits or on a cart, well-labeled and ready for use.

Example Screening PPE

Special Pathogen Basic PPE

Precautions are to be initiated and PPE donned as soon as a suspect case is recognized and sufficient for novel influenza, MERS, SARS, and similar suspected diseases as well as stable patients with suspect VHF.

Consists of¹:

- Fit-tested N95 or equivalent/higher respirator²
- <u>Fluid-resistant</u> gown that extends to at least mid-calf (may substitute impermeable, though heavier, hotter, and costlier)
- · Nitrile gloves with extended cuff 2 pairs
- Face shield
- Consider booties and head cover (Note: not required by CDC but <u>recommended</u> by Occupational Safety and Health Administration (OSHA))

Note: The first four items should be available at triage and routinely applied for any suspected special pathogen patient requiring physical contact and during initial assessment. Just-in-time training should reinforce the specific hazards of VHF patients during outbreaks that may result in patients presenting to the facility. VHF PPE

Precautions are to be initiated and PPE donned when suspicion for EVD or another VHF is high based on current outbreak epidemiology and the patient is either unstable, exhibits vomiting, diarrhea, or bleeding, or such conditions are judged reasonably likely. The facility should select its VHF PPE depending on what the providers are used to and have available. For the purposes of this document, we assume that gowns and N95 respirators are used since these are more routinely available. The option for coveralls with overboots/shoes is appropriate and may offer additional protection from bodily fluid exposures and the use of PAPRs offers an additional level of respiratory protection. All skin should be covered.

Consists of:

- Fit-tested N95 or equivalent/higher respirator²
- Nitrile gloves with extended cuff 2 pairs
- · Impermeable gown that extends to at least mid-calf
- Knee high pull-on impermeable booties
- · Surgical hood (full head coverage draping onto shoulders)
- Face shield
- Impermeable apron should be added for patients with significant body fluid losses/exposure risk

<u>Guidance</u> on doffing/donning and use of PAPRs is available from the CDC.

¹ These materials should be immediately available at triage and staff should be able to don them rapidly. Inventory should be monitored to ensure individual items are not removed from the ensemble for alternate uses. In the absence of a known outbreak, consider keeping materials accessible but locked to prevent alternate use.

² PAPR with proper filtration may be advisable if available for patients with respiratory symptoms or requiring airway intervention.







PLANNING/POLICY/RESOURCES

- All frontline hospitals should have a plan to manage patients potentially infected by a special pathogen. Table 2 identifies key elements that should be considered in response plans.
- Hand hygiene (e.g., handwashing with non-antimicrobial soap and water, alcohol-based hand rub, or antiseptic handwash) is one of the best ways to remove microorganisms, avoid getting sick, and prevent the spread of infection to others.
- Each facility should consider its unique needs and assure compatibility with applicable regulatory requirements and national standards when developing a response plan.¹
- Facilities should consider developing algorithms to guide their procedures. A disease-specific algorithm provides:
 - \circ Case definition
 - Hyperlinks to resources
 - \circ PPE instructions
 - \circ Pre-identified room to place patient

- Provider tasks
- Laboratory protocols
- Notification protocol

Overall Planning Considerations • Risk/role Role of hospital in community/region and available assessment/treatment/transfer resources Patient demographics At-risk populations • Proximity to transportation hubs (e.g., international airports) Resources – type and amount based on risk Staff • Supplies (e.g., PPE and patient care) • Space (e.g., negative airflow rooms, doffing/donning space) Systems (e.g., notification, electronic health record [EHR] integration, laboratory, policies, training systems) Type and scope of infectious disease incidents (e.g., suspect special pathogen case, pandemic, severe influenza year) Response partners – who should be involved in the planning? Facility partners (e.g., labor unions, emergency department, emergency management, infection control and prevention, infectious disease, relevant inpatient units, public relations, chief medical officer [CMO]/chief nursing officer [CNO], environmental services, plant operations/maintenance, clinical laboratory, admissions, hospital security) Local agencies and healthcare coalition (e.g., local health department, emergency management, emergency medical services [EMS], medical examiner) State agencies (e.g., state health department - state agencies will involve federal partners as required)

¹ Examples: <u>2017-2022 Health Care Preparedness and Response Capabilities</u>, <u>Implementation Guidance for Ebola Preparedness</u> Measures, and <u>Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers Final Rule</u>



Table 2. Key Planning Elements for Frontline Facilities.



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Emergency Management Considerations

Hospital Incident Command System (HICS)

- \circ Authorities legal (including isolation and quarantine regulations) and administrative
- Organizational response structure for infectious disease incident
- \circ Triggers for activation of incident command
- \circ Activation/notification process and persons notified and communication plan (consider contact list with check-offs for who was notified and when)
- \circ Situation monitoring and communication process
- \circ Technical experts (e.g., infectious disease and infection control and prevention, legal)
- \circ Incident action planning process consider facility-specific incident response guide
- Public relations

Internal communication

- Facility personnel (e.g., clinical leadership, infection control and prevention, administration) list and contact information
 Staff
- \circ Patients, families, and visitors
- External communication
 - Communication and information sharing what information is shared, with whom, and when how is information release coordinated with public health partners?
 - \circ Communication with local, state, and federal partners list and contact information
 - Communication with media/others Health Insurance Portability and Accountability Act (HIPAA) and other issues
- Demobilization/disposal/after action review/recovery

Operational Considerations

- Points of entry into healthcare delivery system –screening for potential special pathogen cases at each entry and process for transfer to emergency department (or direct via EMS to a different facility for assessment)
 - \circ Nurse line/triage line phone call
 - Web-based encounter/telemedicine
 - \circ Emergency department
 - \circ Walk-in clinic/urgent care/free-standing emergency department
 - \circ Ambulatory care center
 - \circ Private physician/primary care provider office
 - \circ Arrival via EMS
- Care team/staffing model
 - \circ Skill mix and selection of personnel special pathogens "team" or all personnel trained equally
 - \circ Roles and responsibilities lab, environmental services, use of trainees, etc.
 - \circ Staffing model hours, rotations, process must be able to initiate care 24/7
 - \circ Special populations (e.g., pediatric, labor and delivery, geriatric)
- Visitor/family management
- Language, religious, and cultural issues that may complicate patient care





Exercises

Infection Control Considerations

• Screening and identifying high-risk patients

- \circ Who (patient)
- \circ Where and when (travel history)
- \circ What is the concern/condition (according to CDC case definitions/epidemiology and how sick the patient is)
- \circ How (contact with a person confirmed to have a highly contagious disease)

• Isolating high risk patient

- \circ Suspected diagnosis and precautions to be taken
- \circ Administrative controls (e.g., policies, procedures, algorithms, checklists, training)
- Engineering controls (e.g., negative pressure room, single occupancy room with restroom, cohort space, evacuation route)
- \circ Physical controls (e.g., PPE)
- \circ Designated room
 - Airborne infection isolation room (AIIR) negative pressure isolation room or, if no AIIR room available, room removed from immediate patient care areas with closeable door and no recirculation of air to facility unless high-efficiency particulate air (HEPA) filtered
 - Bathroom included, adjacent, or bedside commode (with a plan on how to dispose of the waste)
- Storage area for patient belongings
- Follow IPC practices and guidelines
- Waste process
 - \circ Place to store waste large volumes of PPE, linen, and other waste may be generated
 - \circ Disposal plan (e.g., disinfect, use solidifiers)
- Area for donning/doffing optimally in adjacent/anteroom but must secure sufficient protected space
- Dedicated equipment, hand hygiene, and restricted patient movement
- Extent of care at frontline facility (i.e., what are the goals at the facility and where and when will the patient be transferred to a regional facility for further care?)
- Patient movement (i.e., transport and transfers)- who can provide, what are the resources
- Training needs and resources (e.g., National Ebola Training and Education Center [NETEC] courses, existing in-house programs and systems, etc.)

Patient Care Considerations

- Patient condition
 - Ambulatory
 - \circ Non-ambulatory
 - \circ Critically ill





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- Special considerations
 - At-risk and patients with functional needs
 - Pregnant
 - Pediatric
 - Geriatric
 - Delirious/confused (multiple issues including cooperation with caregivers)
 - Clearly deceased/dead on arrival¹

• Laboratory services

- o Specimen acquisition who acquires and how are samples managed?
- Diagnostic testing what will be performed and where? list of general and specific tests and the specimens and tubes required²
- Compliance with protocols and procedures for sending specimens for confirmatory testing, internal and external specimen packaging, transport, storage prior to transport, tracking from collection to transport/destruction
- Disinfection and medical waste management label, sequester, hold until test results completed
 - Category A waste management VHF and other infectious substances capable of causing permanent disability or life-threatening or fatal illness in exposed humans or animals³
 - Category B waste management other infectious substances that do not meet the Category A criteria (note that specimens for MERS-CoV are handled as Category B infectious substances but patient waste may be handled in the usual manner)⁴
- High risk procedures (e.g., central line placement, intubation, surgery, dialysis, delivery/C-section for VHF)
- Linen service
- Food service
- Discharge
- Decedent management
- Decontamination of rooms/equipment

Healthcare Worker Safety Considerations

- Countermeasures (e.g., vaccination, prophylaxis)
- PPE
- Training (e.g., agent information, patient screening and care processes, drills, exercises, just-in-time resources)
- Healthcare worker monitoring

²Basic laboratory tests include electrolytes, urinalysis (dip), urine pregnancy, hemoglobin, and malaria smear/rapid test.

³ Dangerous Goods Regulations.

⁴ Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV).





¹Resuscitation should not be withheld because of infectious concerns. Few cases actually have the suspected disease and some causes of cardiac arrest are correctable (e.g., altered electrolytes).







Exercises

Financial Considerations

- Procurement/supply chain
- Documentation/legal statutes
- Accounting

SAFE SYSTEMS OF WORK

- To protect HCWs, healthcare facilities provide onsite management and oversight of adherence to <u>safe</u> <u>systems of work</u>.
- Healthcare facilities should ensure their planning and policies are congruent with usual workplace safety programs (e.g., <u>Bloodborne Pathogens</u> [29 CFR 1910.1030], <u>PPE</u> [29 CFR 1910.132], and <u>Respiratory</u> <u>Protection</u> [20 CFR 1910.134] standards and other requirements under OSHA) as well as any state OSHA or other regulatory requirements.
- Engineering controls and policy should specify:
 - \circ Pre-identified negative pressure isolation rooms or other designated isolation room.
 - Designated cold, warm, and hot zones, where PPE donning/doffing occurs contamination is minimized in this area by following appropriate procedures:
 - Green or cold zone (clean) is outside the area of patient care, PPE doffing, and waste storage/handling.
 - Yellow or warm zone is near the exit of the patient room or in the anteroom if one is available where PPE doffing or contained waste handling occurs and contamination is a possibility.
 - Red or hot zone is the area within the patient room and is considered contaminated.
 - \circ Safe flow and movement of patients.
- PPE is considered the least effective control by itself.
 - Each frontline facility should have enough PPE on hand to provide at least 12-24 hours of care as commensurate with the tiered regional system. Generally, the items in the example Special Pathogen Basic and VHF PPE ensembles should be available in all frontline hospitals, though specific models may vary based on facility preferences, supply contracts, and other factors.
 - Selection and training on PPE should follow usual program requirements and include an understanding of the risks of the PPE used. Some of the items in the example Special Pathogen Basic and VHF
 PPE ensembles exceed what is recommended for specific special pathogens during screening. Each frontline facility should balance the intent to use as protective an ensemble as may be necessary for an unknown pathogen with the known risks of working in levels of PPE that are higher than usual.
 - Special Pathogen Basic PPE should be available at triage and in each patient treatment area. These supplies should be considered in overall inventory management practices and rotated for clinical and training uses to avoid waste and unnecessary stockpiling.
 - Frontline facilities should pay careful attention to ensure adequate space is available and checklists and trained observers are used when donning and doffing higher than usual levels of PPE, particularly when VHF is suspected.



Screening



Special Respiratory Special Considerations Exercises

- Modify the initial level of isolation and PPE as additional symptoms and information are gathered. PPE items may need to be added or removed as the likelihood of a specific pathogen increases. Once the pathogen has been confirmed, frontline facilities should follow disease-specific guidelines for PPE and infection control precautions.
- Consider the following when selecting the isolation room:
 - Patient movement routes from the emergency department (ED) triage area or the ambulance entrance to the isolation room.
 - Ventilation characteristics.
 - Proximity to bathroom/integrated bathroom.
 - \circ Ability to isolate individual patients or cohort patients by diagnosis, depending on the disease.
 - Availability of designated PPE donning and doffing area(s) or ability to control/cordon dedicated space.
 - \circ Availability of initial waste storage space and pathway to secondary waste management space.
 - \circ Ability to communicate with and monitor the patient from outside the room.
 - \circ Sufficient space available to provide care in place while awaiting test results/transfer.
 - Proximity to staff relief areas.
- Refer to the <u>Isolation Room Supply List</u> for items that should be available in each patient isolation room. A rigid outer receptacle (overpack) provided by an approved waste vendor and meeting U.S. Department of Transportation (DOT) Hazardous Materials Regulations (HMR) requirements for Category A transport should also be available at or to the facility to allow safe sample packaging.

Resources:

- 2017-2022 Health Care Preparedness and Response Capabilities
- ▶ Bloodborne Pathogens (29 CFR 1910.1030)
- Components Necessary for a "Ready" Frontline Hospital
- Dangerous Goods Regulations
- Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers Final Rule
- ► Guidance for the Selection and Use of Personal Protective Equipment (PPE) in Healthcare Settings
- ▶ Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings (2007)
- ► <u>Hierarchy of Controls</u>
- Implementation Guidance for Ebola Preparedness Measures
- Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
- MERS Control and Prevention
- Multi-year Planning, Training, and Exercise Plan Template
- Powered Air-Purifying Respirator (PAPR) and Gown Donning and Doffing Procedures
- Preparing U.S. Hospitals for Ebola
- ▶ PPE (29 CFR 1910.132)
- Regional Treatment Network for Ebola and Other Special Pathogens
- Respiratory Protection (20 CFR 1910.134)
- Sample Needs Assessment Questionnaire
- ► <u>Standard Precautions in Health Care</u>



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Screening and Electronic Health **Record** Considerations

BASELINE SCREENING / NO CURRENT OUTBREAK¹

- Sporadic cases of VHF and other unusual diseases occur. Trained staff in conjunction with algorithms/ prompts can be critical to identifying a new suspect case. These same screening mechanisms may help identify measles, pox viruses, influenza, and other infectious diseases as well as potential travel-related illness (e.g., NYC Health + Hospitals Initial Patient Screening Algorithm for Infectious Diseases for EDs).
- Patients do not usually present with a specific diagnosis. It is important to routinely apply standard precautions and add appropriate transmission-based or special pathogens precautions whenever history or exam findings warrant.
- Implementing screening during triage and before completing full patient evaluation can reduce transmission and assist in identifying and isolating the patient.
- Triage/screening strategies should be tailored to facility needs and processes.
- Surveillance for general communicable diseases can include:
 - Visual communication such as posters/signage to report any recent international travel to the triage staff and to "cover your cough" or encourage other infection control actions. Consider stations at hospital entrances/triage with hand gel and masks with signs attached (e.g., Universal Screening Sign) to encourage patients to self-identify and take actions to reduce transmission. Consider translation to common local languages.
 - Travel and contact screening questions (e.g., international travel within the last 30 days) integrated into the EHR. Sample questions are included in the <u>Electronic Health Record Screening</u> document.
 - Best practice advisories can flag fever and chief complaints in the EHR to prompt documentation of travel history.
- Symptom/syndrome actions may include:
 - Febrile respiratory illness screening provide a simple mask to those with cough and fever and rapidly move them to a treatment room regardless of travel history.
 - Fever and rash provide a simple mask and rapidly move to a treatment room unless clearly urticaria or other benign rash.
 - Assessment by a provider for other risk factors if history of recent travel to a country where special pathogens may be endemic.
- Additional screening questions should be guided by the background of the patient, the exposure history, and disease epidemiology. Decision support tools (e.g., CDC disease-specific protocols) can assist once a suspect case is identified.

¹ Refer to <u>Outbreak-Specific Changes to Screening</u> section to tailor local screening questions to be adjusted for pathogen-specific and associated precautions.







- Provider education and "just-in-time" training can help identify cases that are missed by usual symptom and vital sign flags.
- If a communicable special pathogen disease is suspected, triage personnel may initiate isolation actions:
 Patient performs hand hygiene and dons simple mask.
 - Provider dons gloves and N95 respirator (if physical contact with the patient cannot be avoided, rapidly don Special Pathogen Basic PPE)
 - Escort patient to isolation room or designated room clear hallway to isolation room for suspect VHF cases.
 - Provider dons Special Pathogen Basic PPE to enter and assess patient further unless VHF is suspected and the patient is unstable and/or there is high risk of exposure to bodily fluids, in which case VHF PPE is donned.
 - Screen based on history and exam and continue or adjust PPE based on pathogen/disease suspected.









Figure 2. Sample Daily Screening and Triage Process - No Significant Risk of a Special Pathogens Patient Presenting.¹

¹This is a general screening algorithm and should be modified during an epidemic and/or with current community cases. Algorithms are helpful, but do not replace good clinical judgment.

² Screening criteria may change to fever OR cough OR rash OR other hallmark signs/symptoms plus travel when a significant outbreak increases the risk of patients presenting to the facility.

³ This should be based on information already available/known to the triage personnel. If unsure, isolate the patient while additional information is gathered and other sources are used to determine epidemic and endemic disease.

⁴ Contact local health department to ascertain risk of special pathogen.



Screening

Special Respiratory Exercises

and

Resources

Checklists



OUTBREAK-SPECIFIC CHANGES TO SCREENING

- Situational awareness of outbreaks is critical.
 - Monitor communicable disease outbreaks of international and public health concern through state and local department of health alerts or advisories, CDC travel health notices, and other reliable sources (e.g., Travel Clinical Assistant).

Special

ations

Consider-

- Ensure your facility website (e.g., <u>NYC Health + Hospitals Special Pathogens Program</u>) has an easy-tofind link to a reliable infectious disease information source.
- Outbreak/disease-specific changes to screening should be implemented in consultation with local and state public health authorities.
 - Pre-designate who will be responsible for identifying the need and implementing outbreak-specific changes to screening.
 - Refer to disease-specific guidance on <u>Special Respiratory Disease</u> and <u>VHF</u>.
 - Ask about disease-specific signs and symptoms of concern when there has been travel history to an outbreak area within the incubation period (e.g., up to 21 days for most VHF, up to 14 days for MERS). Post disease-specific algorithms at triage to assist.
 - If cases are present in the community, ask about exposure to ill individuals including those with known disease or persons with recent relevant exposure or travel history.
 - Modify the EHR to include best practice advisories tailored to current outbreaks, including more focused travel history and potentially broader inclusion symptoms for screening (e.g., cough, gastrointestinal [GI] symptoms, or rash without fever).
- Posted information in the lobby/triage areas should reflect any specific symptoms or countries relevant to current outbreaks (e.g., "Please let our triage nurse know right away if you have visited [country X] in the last month"). Ensure that the signage is also translated into relevant languages.
- Provider education on symptoms/presentation of special pathogens can help detect atypical cases.
- Continue to Viral Hemorrhagic Fever or Special Respiratory Disease sections if patient meets criteria and is at risk based on clinical judgement of the provider pending further history and evaluation.
- If the patient does not meet the suspect case definition and is unlikely to have the condition based on potential exposure history or symptoms (see Figure 2), release from isolation.





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¹Though this is titled "Special Respiratory" it is also appropriate for poxviruses.





Planning	Screening	VHF	Special Respiratory	Special Consider- ations	Exercises	Refer and Resou

ences Checklists urces

Resources:

- ▶ 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, Appendix A
- ► <u>Check List for Arrival of Patient with a High Consequence Infectious Disease (HCID)</u>
- Cover Your Cough
- Development of Protocols for Management of Patients Presenting to Hospital Emergency Departments and Clinics with Potentially Communicable Diseases of Public Health Concern
- ► Door Isolation Signs: <u>Level 1</u> and <u>Level 2</u>
- Hand Hygiene Print Materials
- ► <u>High Consequence Infectious Disease (HCID) Screening Guidance</u>
- MERS Co-V ED Screening Protocol
- MERS Health Advisory
- ► <u>NYC Health + Hospitals Special Pathogens Program</u>
- <u>Pathogen Infectious Disease Isolation Guide</u>
- ▶ PPE Donning and Doffing: <u>N95</u> and <u>PAPR</u>
- Travel Clinical Assistant
- ► <u>Travel Health Notices</u>

«

Yellow Book, Chapter 5: Post Travel Evaluation



VHF

Special Considerations

Exercises

Viral Hemorrhagic Fever



EXAMPLE DISEASES

- Ebola virus disease (EVD), Marburg, Lassa, Lujo, South American hemorrhagic fevers.
- Transmission based PPE should be used once a specific VHF is suspected, defaulting to the VHF PPE when a patient is unstable with vomiting, bleeding, or diarrhea and there is a high risk of exposure.

IDENTIFY

- Obtain exposure history:
 - \circ International travel in past 21 days to an area with active transmission of a VHF or
 - Contact with an individual with a VHF disease within the previous month (longest incubation timeframe for most VHFs is 21 days).
- Question patients who meet the exposure criteria about signs or symptoms compatible with VHF.
 - Signs and symptoms vary by disease and may be nonspecific, but in general, check for: abrupt onset of fever, myalgias, and prostration.
 - GI symptoms (diarrhea, vomiting, abdominal pain) are common.¹
 - Followed in severe forms by coagulopathy with a petechial rash or ecchymoses and sometimes overt bleeding from mucous membranes, GI tract, or urinary tract.
- If the patient is unable to provide exposure history due to their clinical condition or other communication barrier, elicit history from the next most reliable source (e.g., family, friend, EMS provider).
- Ideally, isolate patient and continue asking screening questions about:
 - Date of onset of symptoms.
 - Contact with body fluids (blood, saliva, sweat, nasal secretions, urine, tears, stool) or laboratory specimens related to a person suspected of or diagnosed with a VHF.
 - Participation in any funeral preparations, burial services, or funeral rites for a deceased person.
 - \circ Any contact with animals while travelling internationally.
 - Visitation at any healthcare facilities while traveling internationally.
 - \circ Family members or other close contacts that are ill.
 - \circ Whether the patient is taking malaria prophylaxis and, if so, what kind and for how long.

ISOLATE

- If a relevant exposure history is reported and signs or symptoms consistent with a VHF are present, immediately move the patient to the isolation room via a pre-designated route to limit exposures to other staff, patients, and visitors.
 - Do not delay patient placement, but remove unnecessary equipment and supplies from the designated isolation room as possible.

¹ Yellow Book



Exercises

- \circ The patient should perform hand hygiene and wear a simple mask.
- Staff should don gloves and N95 respirator and avoid direct contact with the patient. If the patient needs immediate assistance and contact is unavoidable, a provider should quickly don Special Pathogen Basic PPE. Transmission based PPE should be used once a specific VHF is suspected, defaulting to the VHF PPE when a patient is unstable with vomiting, bleeding, or diarrhea and there is a high risk of exposure.
- Isolation should occur in a designated private room (with private bathroom or covered bedside commode) separate from other patient care areas.¹ While an airborne infection isolation room (AIIR) is not required for VHF, some VHFs (e.g., Lassa fever) may be capable of spread via the respiratory route and some facilities *may* elect to use an AIIR, if available.
- EMS transported patient: ED should have a system of advance notification from EMS about any suspect case and receive the patient in a designated area (away from other patients). A plan for safely transporting the patient on the stretcher to the isolation area with minimal contact with non-essential healthcare workers or the public should be developed. EMS-specific procedures are outlined in the <u>EMS Infectious</u> <u>Disease Playbook</u>.
- Limit the number of patient care providers and keep a log of those entering the room. Only trained HCWs should enter the room; institutional policy should specify the level of training for providers including staff requirements (e.g., only those trainees essential to accomplish critical procedures, no students) while balancing available staffing with potential increased risks in involving less experienced HCWs.
- Determine visitor policies including how parents of children and family members accompanying a patient will be handled. This may vary between facilities.
- Provide access to interpreter via phone as required for patient and ideally in person to address family and visitor issues.
- Consider telemedicine if possible for consultations. If staff must enter the patient's room, don appropriate PPE based on the patient's clinical status.
- Place appropriate infection control/infection prevention door and other relevant signage (e.g., "VHF Precautions").
- Complete history and physical exam. Consider:
 - Utilizing diagnostic technology (e.g., bedside sonogram) and laboratory workup that can be performed in the isolation environment.
 - Performing routine interventions (e.g., placement of peripheral IV, phlebotomy) per differential diagnosis and patient's clinical status in consultation with infection control/infectious disease and local or state department of health.
 - Obtaining imaging in the isolation environment if possible. The need for plain film or CT imaging should be carefully weighed and a process in place for safe transport and decontamination of the equipment if the patient must be moved for imaging studies.
- Assess clinical stability and be prepared to intervene quickly if warranted.
- Evaluate for disabilities such as poor vision, developmental or physical limitations, and hearing issues and address.
- Provide means of communications to the patient (e.g., phone, tablet/slate computer, white board/dry erase markers).
- Consider special population needs (e.g., pediatrics, obstetrics, geriatrics) in patient management.

¹<u>Identify, Isolate, Inform: Emergency Department Evaluation and Management for Patients Under Investigation (PUIs) for Ebola Virus</u> <u>Disease (EVD)</u>





Special Considerations References

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- In the event of a medical emergency or acute deterioration in patient status, a crash/airway cart should be readily available to obtain equipment and medications.
- Ensure safe medical devices, supplies, and patient care equipment are available (see <u>Isolation Room</u> <u>Supply List</u>).

INFORM

• Determine based on history, exam, and initial diagnostics whether the patient should be considered a person under investigation (PUI) in consultation with public health authorities.

If no, release from VHF precautions and adopt standard or transmission-based precautions.
If yes, determine if the patient will be transferred for further workup or remain at the facility for evaluation.

- Upon the designation of a PUI, a facility should activate its HICS an incident commander and a public information officer should be designated at minimum. Depending on the situation and needs, the command center may be opened.
- Unified command including Emergency Support Function 8 (ESF-8)/Health and Medical partners should be established as required for complex situations.
- Follow notification protocols within the facility and externally with public health authorities and any consulting or receiving facility. Consider developing a notification list.
- Internal notifications should occur as specified in <u>Figure 3</u>.
- External notifications should be made according to local protocols.
 - In most cases, the primary external notification is the local or state health department. In general, the health department will be responsible for contact tracing, identification and health monitoring; surveillance of persons at risk; providing outbreak response support; and implementing legal authorities.
 - If the patient is in a high risk category, the facility may assist with contact tracing/quarantine as recommended by public health.
 - \circ EMS should be notified about a PUI and, if EMS transported the patients, the providers should be notified.

PPE

- Refer to Figure 1 for the PPE ensemble.
- Refer to <u>PPE Donning and Doffing Checklists</u>.
- In the event of a PPE breach, consider:
 - Moving immediately away from source of contamination to an area where the breach can be evaluated and doffing of PPE is possible.
 - \circ Assessing the nature of the breach.
 - \circ Assessing the risk of exposure to skin and mucous membranes.
 - Washing any exposed skin thoroughly with soap and water, after which an alcohol-based hand rub (ABHR) can be used. Care should be taken not to abrade or damage the skin. Bleach solutions are not recommended for cleansing of skin as they may damage the protective outer skin layer.
 - Flushing exposed mucous membranes thoroughly with water.



VHF



References

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- Informing supervisory personnel, occupational health, and public health authorities immediately in the case of exposure to bodily fluids.
- Assessing need for post-exposure prophylaxis or vaccination depending on the exposure and suspected agent.

INITIAL CLINICAL CARE (FIRST 48-72 HOURS) CONSIDERATIONS

This section is mainly applicable to frontline facilities that cannot transfer a PUI until the illness is confirmed by laboratory testing.

Airway issues

- PAPR with appropriate filtration and hood should be used if available during airway interventions such as intubation and deep suctioning.
- Noninvasive ventilation is relatively contraindicated due to high incidence of aerosol generation and risk of vomiting/aspiration.
- Dry powder inhalers should be used instead of nebulized liquid if bronchodilators are needed.
- Rapid sequence induction techniques are preferred for intubation to minimize coughing.
- Nasogastric tubes are relatively contraindicated except in intubated patients.
- Elective or semi-elective intubation is preferred, if possible, due to PPE donning requirements.
- Only the minimum number of staff needed to safely complete the intubation should remain in the room.

Intravenous access issues

- Consider oral rehydration if feasible to avoid IV placement.
- Central venous catheterization is NOT routinely required; generally reserve for central medication/ multiple medication drip indications. Experienced providers using ultrasound guidance are preferred.
- Adhesive dressings/steri-strips or staples should be used to immobilize catheters if possible instead of suturing central lines in place.
- Intraosseous devices are an acceptable route of parenteral access.

Diagnostics

- Coordinate serologic testing for VHFs with the public health department (local or state per protocol).
- Diagnostic tests that will not immediately change the treatment of the patient should not be performed if they require transporting the patient. More information on imaging caveats is available in the <u>Isolate</u> section. Only obtain blood samples for required tests as disposal of blood if the patient is positive will require special procedures.
- Testing should be performed inside the patient's isolation room whenever possible (the <u>Lab Issues</u> section contains related information).
- Consider dedicated equipment, such as a portable ultrasound, for use in the isolation room.
- If equipment is used in an isolation room and removed, ensure appropriate decontamination prior to placing in service.
- Use disposable equipment and supplies whenever possible.



Special Considerations Exercises

Intensive therapies

Screening

- <u>CDC guidelines</u> should be followed regarding safely selecting and using equipment, handling and disposing of waste, and disinfecting equipment.
- Blood product transfusion should be performed in accordance with conservative transfusion guidelines and in conjunction with hematology consultation.
- HCWs must prevent and avoid direct contact or splashes with blood/bodily fluids, contaminated equipment, and soiled environmental surfaces. Special attention is required to high pressure/flow in central lines and other catheters with large residual blood volume.
- Dialysis/continuous renal replacement therapy (CRRT) should be via bedside unit in the isolation room. Patients should NOT be transported to the hemodialysis unit. Hemodialysis/CRRT machines should remain in the patient's room after use until terminal cleaning is performed.
- Line/dialysis effluent and body wastes should be disposed in toilet or drain that minimizes risk of splashes and allows safe drainage into the sanitary sewer system.
- Detailed guidance for safely performing hemodialysis/CRRT in patients with EVD is available from CDC.
- Extracorporeal membrane oxygenation (ECMO) has not been evaluated in EVD/VHF patients but is unlikely to be indicated.

Staffing

- Staffing at a nurse:patient ratio of 1:1 with continuous nursing presence in the room is advisable for stable patients. For patients with vomiting, diarrhea, or bleeding/high risk of exposure or those requiring intensive care, two providers are recommended though they may not be constantly required.
- Non-clinician HCWs can support clinical staff (e.g., oral rehydration administration) if required however, a minimum of staff should be used.
- Functioning in full PPE will require frequent staff changes and adequate rest. To reduce the stress on staff, place a chair in the isolation room and consider turning the thermostat down if the patient is warm enough to do so or can be insulated.
- Communication via windows, intercom, speakerphone, tablet computer with cleanable surface, white board/dry erase markers, and/or video minimizes door opening and transit in and out of the PUI's room.
- Staff within the isolation room will require support from staff outside the isolation zone (e.g., medications prepared and sent in). Staff outside the room should monitor the activities in the isolation area. Staff outside the room will also be needed to serve as observers for donning and doffing procedures.

Mental health/anxiety/dignity

- Patients and their loved ones may find the appearance of providers in PPE alarming.
- Patients in isolation may have higher depression and anxiety rates than those not isolated. Anger, hostility, fear, and loneliness have also been reported by patients who have been isolated.
- Facilitating communication with family and friends of PUI and confirmed cases may improve psychological well-being. Mobile phone, internet-based, and/or other two-way visual communication between PUIs and loved ones may reduce distress without increasing the risk of disease transmission.



VHF

Special Respiratory Special Considerations

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- Counseling of PUI by mental health providers, even if by video, may be beneficial.
- Faith-based services, music therapy, and movies may also be beneficial to the mental health of patients and their loved ones.

Mortuary affairs

- If a death occurs within the hospital setting, postmortem care should occur in collaboration with public health officials in the state or local jurisdiction and the medical examiner including packaging and transportation of the decedent.
- If the suspected VHF is a Category A infectious substance (e.g., EVD, Lassa Fever, Marburg) the body is subject to local, state, and/or federal regulations for safe removal, transport, and disposal.

LAB ISSUES TO CONSIDER

- It may take up to 72 hours or longer after symptom onset to definitively confirm or rule out an EVD diagnosis, with an additional 12 to 24 hours for specimen transport and testing. In some cases and geographic areas, low risk patients will remain at the frontline hospital until confirmatory test results are obtained.
- Laboratory leadership should establish a test menu including minimum testing procedures for PUI sample acquisition and processing including who obtains the labs and the process followed.
- The hospital core laboratory (e.g., central accessioning, pathology administration) should be notified prior to specimen collection.
- Laboratory testing at frontline hospitals should be limited to the minimum necessary for diagnosis and acute medical care. Testing should be performed inside the patient's isolation room using bedside instruments and methods whenever possible to avoid transport and equipment contamination issues. Frontline hospitals that can immediately transfer PUIs should defer testing on stable patients to the receiving facility.
- An example of a minimum menu of testing to ensure appropriate clinical care can include (tests are not indicated in all patients):
 - A complete blood count (CBC), including differential, and platelet count.
 - Sodium, potassium, chloride, bicarbonate, blood urea nitrogen, creatinine, and glucose concentrations (Chem 7).
 - Liver function tests (or consider bilirubin at minimum).
 - Coagulation testing, specifically prothrombin time (PT), expressed as international normalized ratio (INR).
 - Malaria testing (rapid testing).
 - Urinalysis (dipstick).
 - Urinary pregnancy test.
 - Influenza A and B and respiratory syncytial virus testing or respiratory viral panel (if available).
- Only trained employees should perform specimen collection. Specimen collection may be a one or two person process.



Special Respiratory Special Considerations

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- During specimen collection:
 - Use only safety needles and catheters.
 - Use plastic blood collection tubes and ensure caps are tight.
 - Label each specimen with date and time.
 - Inspect each individual bag to ensure it is free of any tears, rips, or damage before placing the specimen inside.
- Each collected specimen that must leave the room should be individually bagged and the exterior wiped down with an Environmental Protection Agency (EPA)-registered disinfectant prior to handoff.
- If testing or packaging is conducted in the core laboratory:
 - PPE to be worn during transport within the facility should be determined by a site-specific risk assessment and may vary among facilities.
 - The specimen must be hand-carried by a trained employee. Do NOT use a pneumatic tube system.
- If testing is conducted in core hospital laboratory on a suspected VHF case, the following are recommended:
 - Procedures requiring centrifugation should be performed using biohazard sealed buckets or rotor.
 - If rapid malaria testing is not available, only thin smears should be prepared and should be performed inside a BSL-2 cabinet and should not be removed from the cabinet until they have been fixed and dried. Do NOT perform thick smears for malarial testing.
 - Cross-matching for blood transfusion should NOT be performed. The patient should be managed with crystalloid, colloid, and, if necessary, O Negative blood transfusions (or O+ for post-menopausal or male patients).
- Packaging specimens for shipping should be performed in the patient's room, if possible.
- All persons packing and shipping infectious substances must be trained and certified in compliance with the DOT or the International Air Transport Association (IATA) requirements every two years.
- Specimens should be shipped via courier or an assigned transporter to the public health laboratory for testing. The local or state health department should be consulted if shipping samples directly to CDC.
- Samples from patients who are suspected or confirmed to have EVD or other regulated hemorrhagic fevers should be packaged and shipped as Category A infectious substances in accordance with the DOT's Hazardous Materials Regulations (HMR) 49 CFR 171-180.
- Specimens for shipment should be packaged in a triple packaging system, which consists of: (1) a primary container (a sealable specimen container) wrapped with absorbent material, (2) a secondary container (watertight, leakproof), and (3) an outer shipping package. For questions about packaging regulations, contact the DOT Hazardous Materials Information Center at 1-800-467-4922.
- Environmental surfaces must be cleaned with EPA-registered disinfectants.
- If patient is ruled in, thorough decontamination of bedside devices should be performed. If core laboratory facility was used to process confirmed patient specimens, which should be a rare event, decontamination should be conducted in consultation with subject matter experts.
- Information on managing laboratory-generated waste is provided in a subsequent section.





Exercises



PATIENT MOVEMENT CONSIDERATIONS

- If the patient needs to be moved to another room within the facility:
 - Consider the risk/benefit of moving the patient. Can the services be brought to the patient?
 - Plan the route through areas with the lowest risk of traffic and control traffic during the move.
 - Security and facilities staff may need to be involved with planning/controlling route and elevators and to provide decontamination as required after the moves/studies are completed.
 - Consider informing hospital staff prior to movement to minimize concerns.
 - \circ Patient to wear simple mask and be wrapped in clean linen. $^{\scriptscriptstyle 1}$
 - If the patient is unstable or exhibits vomiting, diarrhea, or bleeding wrap them in an impermeable sheet and consider diaper/chux and other mitigating strategies prior to movement.
 - During patient handoff from patient room to transport team, ensure staff performing the patient transport wear appropriate and clean PPE to escort patient outside room.
 - \circ Limit elevator occupancy to the patient and transporter.

WASTE AND SPILL MANAGEMENT CONSIDERATIONS

- Large amounts of waste are generated during care for PUIs due to PPE and other materials disposal. Plans should account for multiple bins both in the room and the doffing area.
- Use of disposable supplies including food trays and patient care supplies is encouraged though it will generate additional waste.
- Waste generated in the care of PUIs or patients with confirmed EVD including specimen collection is subject to procedures set forth by local, state, and federal regulations due to the high hazard level. Basic principles for spills of blood and other potentially infectious materials are outlined in the OSHA <u>Bloodborne</u> <u>Pathogens Standard</u>.
- The facility hazardous infectious waste management plan should include procedures for:
 - \circ Waste handling, including packaging area, storage area, and intra-facility transport protocol.
 - Inactivation of contaminated waste onsite (e.g., autoclave, incinerator not considered hazardous waste once sterilized) or protocol for transport offsite compliant with state and federal regulations.
 - \circ Packaging and transport of waste in accordance with DOT regulations.
 - Decontamination of the room if the suspect case is transferred to a treatment center or prior to putting the room back in service while awaiting confirmation.
- Frontline facilities should limit the number of personnel who handle waste. Facilities should consider preidentifying teams with specialized training in waste management procedures and proper use of PPE.
- Linens should remain in the patient's room while laboratory testing occurs.
 Linen should be contained in a soiled linen bag.
 - If patient tests positive for a VHF, linens should be handled as solid waste as described later including pillow cases, sheets and permeable pillows, mattresses, and textile privacy curtains.

¹ See NETEC training video <u>Use of a Containment Wrap when Transferring a Patient with Ebola or Other Special Pathogen</u> for additional information.





VHF

Special Considerations

Exercises

- To prepare for handling, packaging, and shipment of waste, frontline facilities should:
 - Prepare materials as listed in the <u>Isolation Room Supply List Waste Kit</u>. A rigid outer receptacle (overpack) provided by an approved waste vendor and meeting DOT HMR requirements for Category A transport should be located in the periphery of the PPE doffing area.
 - 2. Follow CDC's Procedures for Safe Handling and Management of Ebola-Associated Waste.

Body fluid spills

- To handle body fluid spills, frontline facilities should consider the following steps:
 - 1. Preparation of materials, as listed in Isolation Room Supply List Spill Kit.
 - 2. Consider safety measures, including the following:
 - Assess the need for further assistance with the cleanup.
 - Consider the need for a disposable impermeable apron over the standard PPE.
 - 3. Take the following immediate actions:
 - Layer the entire body fluid spill with enough absorbent pads to allow the fluid to become fully absorbed into the material.
 - If the absorbent pad becomes saturated and body fluid pools on the surface or it is suspected that the pad is insufficient, place more pads on top.
 - 4. For spill containment, once the fluid is absorbed, place an absorbent pad with a fluid resistant backing on top of the layers (the fluid resistant backing should face up).
 - 5. For disposal:
 - Gather and bundle the pads by enclosing them in the outer absorbent pad.
 - Gently place into an autoclave bag-lined trash can.
 - If there is evidence that the body fluid is still present, place additional absorbent pads on the spill or affected area and repeat the procedure.
 - 6. Remove outer gloves and perform hand hygiene using EPA-registered hospital disinfectant wipes on inner gloves before donning a clean pair of outer gloves.
 - 7. Gently gather the neck of the autoclave bag and secure it with autoclave tape for bag disposal.
 - 8. Follow waste processing policy above to remove the bagged items from the patient care area.
 - 9. To disinfect the spill area:
 - Consider using 1:10 bleach solution or EPA-registered hospital disinfectant, mop the area where the spill occurred.
 - If the body fluid spill is small, it is appropriate to use wipes instead of mopping.
 - If the spill involves sharps, refrain from gathering or handling the materials without cut resistant gloves and use tools rather than hands to package and move materials/waste.
 - After the area has been mopped, remove the mop head from the mop and discard.
 - 10. Document the spill/incident in the patient record and event log.
- Alternately, body fluid spills may be cleaned through the use of an absorber or solidifier, as follows:
 - Sprinkle the absorbent or solidifier over the liquid until the spill solidifies into a gel (about 2 minutes).
 - Scoop up the solidified gel on a dustpan using a disposable cardboard spatula (or similar).
 - The solidified gel can then be disposed of down any toilet or drain or gently placed into an autoclave bag-lined trash can.



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References

Resources

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Resources:

- ▶ Bloodborne Pathogens Standard, 29 CFR 1910.1030
- Cleaning and Decontamination of Ebola on Surfaces
- Considerations for Selecting Protective Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids
- Dangerous Goods Regulations

Screening

- ► Door Isolation Signs: <u>Level 1</u> and <u>Level 2</u>
- Ebola Control and Prevention
- Ebola-Associated Waste Management
- Ebola (Ebola Virus Disease): For Clinicians
- EMS Infectious Disease Playbook
- For U.S. Healthcare Settings: Donning and Doffing Personal Protective Equipment (PPE) for Evaluating Persons Under Investigation (PUIs) for Ebola Who Are Clinically Stable and Do Not Have Bleeding, Vomiting, or Diarrhea
- Guidance for Collection, Transport and Submission of Specimens for Ebola Virus Testing
- ► Guidance for Safe Handling of Human Remains of Ebola Patients in U. S. Hospitals and Mortuaries
- Guidance for U.S. Laboratories for Managing and Testing Routine Clinical Specimens When There is a Concern about Ebola Virus Disease
- Guidance on Personal Protective Equipment (PPE) To Be Used by Healthcare Workers During Management of Patients with Confirmed Ebola or Persons Under Investigation (PUIs) for Ebola Who Are Clinically Unstable of Have Bleeding, Vomiting, or Diarrhea in U.S. Hospitals, Including Procedures for Donning and Doffing PPE
- ▶ Hazardous Materials Regulations, 49 CFR 171-180
- Identify, Isolate, Inform: Emergency Department Evaluation and Management for Patients Under Investigation (PUIs) for Ebola Virus Disease (EVD)
- Information on the Survivability of Ebola Virus in Medical Waste
- Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus
- ▶ Interim Guidance for Preparing Frontline Healthcare Facilities for Patients Under Investigation (PUIs) for Ebola Virus Disease (EVD)
- Interim Guidance for U.S. Hospital Preparedness for Patients Under Investigation (PUIs) or with Confirmed Ebola Virus Disease (EVD): A Framework for a Tiered Approach
- ▶ Interim Planning Guidance for the Handling of Solid Waste Contaminated with a Category A Infectious Substance
- List L: Disinfectants for Use Against the Ebola Virus
- Packaging and Shipping Clinical Specimens Diagram
- PPE Selection Matrix for Occupational Exposure to Ebola Virus
- Preparing Category A Lab Specimens for Transport
- Procedures for Safe Handling and Management of Ebola-Associated Waste
- ▶ <u>Recommendations for Safely Performing Acute Hemodialysis in Patients with Ebola Virus Disease (EVD) in U.S. Hospitals</u>
- ► Safe Handling, Treatment, Transport, and Disposal of Ebola-Contaminated Waste
- Selecting, Evaluating, and Using Sharps Disposal Containers
- ▶ Yellow Book, Chapter 3, Infectious Diseases Related to Travel, Viral Hemorrhagic Fevers





Special Considerations

Special Respiratory



EXAMPLE DISEASES

Screening

- MERS, SARS, novel influenza strains (e.g., H3N1, H5N1, H7N9)
- Transmission based PPE should be used once a specific special respiratory disease is suspected.

IDENTIFY

- Obtain relevant exposure history:
 - International travel in past 14 days to an area with active transmission of a special respiratory disease and/or
 - Contact with an individual with a special respiratory disease within the previous 14 days (incubation period may be as long as 14 days).
- Question patients who meet the exposure criteria signs or symptoms compatible with a special respiratory disease. Signs and symptoms vary by disease and may be nonspecific, but may include fever, chills, cough, sore throat, shortness of breath, muscle aches, vomiting, diarrhea, headache, skin rash, and potentially severe respiratory failure.
- If the patient is unable to provide exposure history due to their clinical condition or other communication barrier, elicit history from the next most reliable source (e.g., family, friend, EMS provider).
- In addition to countries visited, timeframe, and contact with ill persons, ideally, isolate patient and continue asking screening questions about:
 - \circ Date of onset of symptoms.
 - \circ Close contact with anyone known to have a respiratory disease and, if so, who.
 - o Close contact with an ill traveler from the Arabian Peninsula (MERS).
 - \circ Visitation or work at a healthcare facility on the Arabian Peninsula (MERS).
 - Recent close contact with camels (MERS) or other species linked to novel influenza transmission.
 - Employment as a HCW.
 - Underlying medical conditions.



• If a relevant exposure history is reported and signs or symptoms consistent with a special respiratory disease are present, immediately move the patient to an AIIR¹ or, if no AIIR is available, to a separate private room via a pre-designated route to limit exposures to other staff, patients, and visitors.

¹ An AIIR is a single patient room at negative pressure relative to the surrounding areas and with a minimum of six air changes per hour (12 air changes per hour recommended for new construction or renovation). Air from the room should be exhausted directly outside or filtered through a high-efficiency particulate air filter before recirculation. Room doors should be kept closed except when entering or exiting the room, which should be minimized. Facilities should monitor and document the proper negative-pressure function of the room. Taken from Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV).



Screening

Special Respiratory Special Consider-

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- The patient should perform hand hygiene and wear a simple mask.
- Staff should don an N95 respirator and gloves and avoid direct contact with the patient until Special Pathogen Basic PPE is donned. Transmission based PPE should be used once a specific special respiratory disease is suspected.

ations

- Once the patient is in an AIIR, the patient's mask may be removed if desired. Consider continued mask use if patient is actively coughing.
- If the facility does not have any isolation or in-room HEPA capability, a private room away from other patients should be used. The patient should continue to wear a simple mask if possible. Rapid transfer to a facility with an isolation room should be arranged. If this is not possible or the facility is at risk for patient presentations due to disease in the community, a temporary negative pressure room may be created.
- Ensure all persons with symptoms of a respiratory infection adhere to respiratory hygiene and cough etiquette, hand hygiene, and triage procedures.
- EMS transported patient: Ensure the patient is wearing a simple mask, then move directly to the designated isolation room for assessment, avoiding contact with additional staff or patients.
- Limit the number of patient care providers and visitors and keep a log of people who enter the room. Institutional policy should specify the level of trainee and minimum standard of training required for those who enter the room (e.g., only those trainees essential to accomplish critical procedures, no student involvement).
- Consider telemedicine if needed for consultations.
- Place appropriate infection control/infection prevention door and other relevant signage (e.g., "Special Respiratory Precautions").
- Adhere to procedures and precautions designed to prevent transmission by direct or indirect contact (e.g., dedicated equipment and supplies, hand hygiene, and restricted patient movement).
- Complete history and physical exam. Consider: • Using diagnostic technology (e.g., bedside sonogram) in the isolation environment if possible.
 - Performing routine interventions (e.g., placement of peripheral IV, phlebotomy) per differential diagnosis and patient's clinical status in consultation with infection control/infectious disease and local or state health department.
 - If imaging is required, it should be performed in the isolation room if possible. If this is not possible, provide the patient with a simple mask and clear the route to the radiology room. Ensure technologists wear Special Pathogen Basic PPE during patient contact and at least an N95 respirator and gloves while in the room with the patient.
- Assess clinical stability and be prepared to intervene quickly if warranted.
- Evaluate for disabilities such as poor vision, developmental or physical limitations, and hearing issues and address.
- Consider special population needs (e.g., pediatrics, obstetrics, geriatrics) in patient management.



VHF

Exercises

• In the event of a medical emergency or acute deterioration in patient status, a crash/airway cart should be readily available to obtain equipment and medications.

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• Ensure safe medical devices, supplies, and patient care equipment are available.

INFORM

- Upon the designation of a suspect case, a facility should consider at least partial activation of their HICS including, at minimum, designation of an incident commander and a public information officer. Depending on the situation and needs, the command center may be opened.
- Unified command including ESF-8/Health and Medical partners should be established as required for complex situations.
- Follow notification protocols within the facility and externally with public health authorities and any consulting or receiving facility.
 - Internal notifications should occur as specified in <u>Figure 4</u>.
 - Consider what information, if any, to provide to hospital patients and visitors.
 - External notifications should be made according to local protocols.
 - In most cases, the primary external notification is the local or state health department. In general, the health department will be responsible for contact tracing, identification, and health monitoring; surveillance of persons at risk; providing outbreak response support; and implementing legal authorities.
 - The facility may assist with contact tracing/quarantine as recommended by public health.
 - EMS should be notified about the suspect case and if the patient arrived by ambulance the crew should be notified and coordinate with public health any monitoring or quarantine required.
- Test for special respiratory diseases in consultation with the health department.

PPE

- Refer to Figure 1 for the Special Pathogen Basic PPE ensemble. If VHF is not suspected may discontinue double-gloving.
- Frontline hospitals may also use a PAPR with appropriate filtration levels instead of an N95 respirator if PAPRs are customarily used in the facility and to protect staff who cannot wear a fit-tested N95. Use of a PAPR may be advisable when caring for patients with airway issues or respiratory distress. If using PAPRs, confirm training and policies for cleaning/decontamination of PAPR after use are in place. PAPR filters enclosed in hard cases should be able to be wiped down and reused unless the filter media has become wet or clogged. Soft filters will need to be discarded after each use.
- Refer to Special Pathogen Basic PPE Donning and Doffing Checklist.





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INITIAL CLINICAL CARE (FIRST 48-72 HOURS) CONSIDERATIONS

This section is most applicable when the facility will be providing patient care during confirmatory testing.

Airway issues¹

- PAPR with appropriate filtration and hood should be used if available during airway interventions such as intubation and deep suctioning.
- Noninvasive ventilation is relatively contraindicated due to high incidence of aerosol generation and risk. of vomiting/aspiration.
- Avoid procedures likely to generate higher concentrations of infectious respiratory aerosols including cough-generating procedures, bronchoscopy, sputum induction, intubation and extubation, and open suctioning of airways.
- Dry powder inhalers should be used instead of nebulized liquid if bronchodilators are needed.
- Rapid sequence induction techniques are preferred for intubation to minimize coughing.
- Nasogastric tubes are relatively contraindicated except in intubated patients.
- Elective or semi-elective intubation is preferred, if possible, due to PPE donning requirements.
- Only the minimum number of staff needed to safely complete the intubation should remain in the room.

Diagnostics

- Only diagnostic tests that will significantly change the course of treatment should be performed, particularly when this may involve transporting the patient outside the isolation room.
- If equipment is used in an isolation room and removed, keep a log of equipment and assure appropriate decontamination (usually wiping with an EPA-registered hospital disinfectant) prior to next patient use.

Intensive therapies

- Dialysis/CRRT should be via bedside unit in the isolation room. Patients should NOT be transported to the hemodialysis unit. Hemodialysis/CRRT machines should remain in the patient's room after use until terminal cleaning is performed.
- Venovenous ECMO may have a role in respiratory failure for special respiratory pathogens with acute respiratory distress syndrome (ARDS) and refractory hypoxia.

LAB ISSUES TO CONSIDER

- Respiratory specimens should be collected as soon as possible.
- If available, a respiratory virus panel can help rule in or out other diagnoses.
- Consult local or state health department on types and quantities of specimens to collect as multiple specimens from different sites may be needed.

¹ See example MERS CoV Guidelines for Respiratory Care Services developed by Nebraska Medicine.





Planning

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- It may take +/- 72 hours to definitively confirm or rule out a special respiratory diagnosis, with an additional 12 to 24 hours for specimen transport and testing.
 - It may take 48 hours or longer to definitively confirm or rule out a MERS or SARS diagnosis.
- Lower respiratory specimens (e.g., bronchoscopic lavage or induced sputum) should only be collected when the workup requires them due to aerosol generation risk. Providers performing bronchoscopy should strongly consider use of PAPRs.
- Upper respiratory specimens (e.g., oro- and naso- pharyngeal swabs) must be carefully collected (e.g., sample instructional <u>video</u> and <u>lab protocol</u>). The specimen must be hand-carried by a trained employee. Do NOT use a pneumatic tube system.
- Specimens for shipment should be <u>packaged</u> in accordance with Category B infectious substance regulations, which consists of: (1) a primary container, (2) a secondary packaging, and (3) a rigid outer packaging. For questions about packaging regulations, contact the DOT Hazardous Materials Information Center at 1-800-467-4922.

PATIENT MOVEMENT CONSIDERATIONS

- Consider admitting patients of older age and/or with pre-existing comorbid conditions with suspected or confirmed special respiratory disease to an intensive care unit given the risk of progression to critical illness to minimize room changes.
- If the patient needs to be moved to another room within the facility, consider:
 - The risk/benefit of moving the patient.
 - Limiting transport and movement of the patient outside of the AIIR to medically-essential purposes.
 - When outside of the AIIR, patients should wear a simple mask.
 - Planning the route through areas with the lowest risk of traffic and control traffic.
 - Informing hospital staff prior to movement to minimize concerns.
 - Ensuring that staff performing the patient transport wear appropriate PPE.
 - Limiting elevator occupancy to the patient and transporter.
- Consider use of isopod, if applicable.

DECONTAMINATION AND WASTE MANAGEMENT CONSIDERATIONS

- Medical waste has not been implicated in the transmission of special respiratory diseases such as MERS and SARS. Therefore, at this time, no special handling procedures are recommended for contaminated medical waste.
 - Consult latest CDC guidance for updates/changes to medical waste.
- Medical and patient waste may be disposed of in the usual manner.
- Standard cleaning and disinfection procedures (e.g., using cleaners and water to pre-clean surfaces prior to applying an EPA-registered disinfectant to frequently touched surfaces or objects for appropriate contact times as indicated on the product's label) are appropriate.




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- Management of laundry, food service utensils, and medical waste should also be performed in accordance with routine procedures.
- Detailed information on environmental infection control in healthcare settings can be found in CDC's <u>Guidelines for Environmental Infection Control in Health-Care Facilities</u> and <u>Guideline for Isolation</u> <u>Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings</u> (section IV.F. Care of the environment).

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SURGE INCIDENT CONSIDERATIONS¹

- Consider how multiple patients will be handled at once for screening or inpatient treatment 2, 5, 10 patients. Refer to The Joint Commission Standard IC:01:06:01 for guidance.
- Consider the following when identifying surge spaces:
 - Within the building footprint (e.g., closed yet functional patient unit, designated inpatient unit cohorting).
 - Advantages: Existing heating, cooling, sinks and bathrooms; IT connections are generally easier; environmental services protocols are familiar/known; patient transport is easier.
 - Potential "pop up" space (e.g., medical tents).
 - Advantages: Isolation from hospital (e.g., in parking lot), scalable with added tents, minimizes hospital disruption.
 - Disadvantages: Climate, environment of care issues, unable to offer full range of services, may require a CMS waiver and prior inspection by the state's licensing authority and fire department. May be appropriate for screening but generally not ongoing care.
 - Managing triage/waiting area segregation of potentially infectious patients from others
 - Patient care operations within surge space
 - Replicating familiar supply carts and diagnostics
 - Adding/updating EHR accessibility
 - Bedside lab testing

¹ See <u>Considerations for the Use of Temporary Surge Sites for Managing Seasonal Patient Surge</u> for additional information.



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Resources:

- 2018 Infectious Diseases Laboratory Test Directory
- Airborne Infectious Disease Management: Methods for Temporary Negative Pressure Isolation
- Alternate Care Sites (Including Shelter Medical Care) Topic Collection
- Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition
- Collection of Nasopharyngeal Specimens with the Swab Technique
- Considerations for the Use of Temporary Surge Sites for Managing Seasonal Patient Surge
- Dangerous Goods Regulations
- Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings
- Guidelines for Environmental Infection Control in Health-Care Facilities
- In the Absence of SARS-CoV Transmission Worldwide: Guidance for Surveillance. Clinical and Laboratory Evaluation, and Reporting
- Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV)
- Interim Laboratory Biosafety Guidelines for Handling and Processing Specimens Associated with Middle East Respiratory Syndrome Coronavirus (MERS-CoV) - Version 2
- MERS Control and Prevention
- MERS CoV Guidelines for Respiratory Care Services
- MERS Health Advisory
- Middle East Respiratory Syndrome Coronavirus (MERS Co-V) Lab Protocol for Person Under Investigation (PUI)
- NYC DOHMH Guidance Document for Development of Protocols for Management of Patients Presenting to Hospital Emergency Departments and Clinics with Potentially Communicable Diseases of Public Health Concern
- New York State Department of Health SARS Guidance Document, Chapter 4: Laboratory Diagnosis of SARS
- Postmortem Handling of Human Remains (SARS)
- Supplement I: Infection Control in Healthcare, Home, and Community Settings
- UN 3373 Category B Schematic for Packaging
- Yellow Book, Chapter 3, Infectious Diseases Related to Travel, Middle East Respiratory Syndrome (MERS)





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HEALTHCARE WORKER CONSIDERATIONS

- Consider excluding from the care team staff who are pregnant, immunocompromised, cannot wear PPE for extended periods, or are the sole caregiver for dependents that would preclude routine quarantine actions. Facilities may have more stringent requirements for medical clearance depending on their policies. Volunteer team members for special pathogen care are ideal, but adequate staffing and training must be sufficient to provide initial isolation and care at all times.
- Exposed employees should be monitored for symptoms. The hospital should coordinate with public health to determine the means, need, and duration of monitoring.
- Possible criteria for monitoring includes employees who:
 - Provided direct care to a confirmed special pathogen patient.
 - Provided care to a patient with special pathogen and did not use appropriate precautions.
 - \circ Processed laboratory specimens without taking appropriate precautions.
 - Were exposed to the patient's body fluids (including a mucous membrane exposure and/or a needlestick) despite using appropriate precautions.
 - \circ Other criteria, as applicable.
- Each facility should have a post-exposure plan to include relevant employee and source labs and a consultation plan to determine appropriate interventions as well as a monitoring/quarantine plan appropriate for the agent involved. See <u>above</u> for a VHF PPE breach process. For respiratory illnesses, follow usual institutional exposure protocols adding a monitoring component appropriate for the suspected disease.
- Any HCW under monitoring who develops signs of illness should not report to work or should immediately stop working and notify their supervisor. Prompt medical evaluation should be arranged.
- HCWs should be assessed regarding possibility of post-exposure prophylaxis or treatment depending on the agent and exposure. Post-exposure prophylaxis is seldom indicated but may be considered based on the agent/type of exposure. Prophylaxis with antivirals may be considered in unprotected exposures to novel influenza. In selected situations vaccination may be indicated after a viral exposure (e.g., smallpox, EVD).
- HCWs can experience distress, anxiety, and fear for personal and family safety during the infectious disease event and these feelings may linger after the event has concluded. Providing an orientation for family members of HCWs about the special pathogen, describing how the HCW will work in this setting, and answering questions about potential infection of family members can help address these concerns. Behavioral health support should be provided to mitigate adverse reactions.
- Claustrophobia, anxiety, shortness of breath, and other symptoms are commonly associated with wearing respiratory protection and in particular with use of PAPR hoods. Employees should be educated and have sufficient practice in PPE to recognize and mitigate these symptoms. Employees who experience challenges while wearing PPE should discuss modifications to PPE or work duties with their supervisor.



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PEDIATRIC CONSIDERATIONS

- Pre-hospital
 - \circ Children should wear a simple mask during evaluation and transportation if possible.
 - EMS agencies specializing in pediatric transport are preferred for the inter-facility transport of a pediatric suspected or confirmed special pathogens patient.
 - Use the child's own car seat for transport, if available. Otherwise, use the EMS agency's car seat or child restraint system.
 - If possible, let a caregiver accompany the child during transport, as applicable. The caregiver must use PPE consistent with the suspected or confirmed infectious disease.
 - \circ Comfort items such as stuffed animals may not be able to be decontaminated.
- Consider the risks/benefits of separating pediatric patients from their parents or guardians.
 - Screening and isolation of children is similar to the process for adults except that parents/guardians may accompany the child.
 - Parents/guardians may be able to help with care, especially for preschool age children, as well as provide comfort.
 - \circ Parents/guardians should wear appropriate PPE in the isolation area.
 - \circ Only one parent/guardian should be in the patient's room.
 - Infection control should determine limitations to parental movement within the hospital given their heightened risk of infection.
 - \circ The advantages of family-centered care should be balanced against the need for infection control.
 - Facilities should understand their state laws on protective custody and other regulations governing the emergency care of minors and infectious disease emergencies.
- Allocate resources appropriate to the clinical and behavioral health needs of pediatric patients.
 - Treatment area should have adequate pediatric equipment including pediatric masks and intravenous access/phlebotomy devices.
 - Consider having dedicated toys, media (age-appropriate movies, child-friendly television channel), games including tablet-based games, and comfort items available.
 - If a suspect VHF patient is <u>pregnant</u> be prepared to support delivery and <u>infant care</u> if necessary.
- Consider the child's developmental stage when explaining/involving in decision-making, such as mask wearing, separation from parents/guardians, and explanations provided regarding their illness evaluation and treatment.
 - Caregivers can facilitate age-appropriate communication regarding illness, testing, and comfort.
- Manage the anxiety of patients and families during evaluation. Providers in PPE can be frightening for the patient and stressful for the parents.
- Work with state or local public health department public information officer to develop community messaging and ensure that any needed school-based notification occurs. Health departments have additional resources, authority, and credibility in message delivery.







Special Considerations

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VISITOR/FAMILY CONSIDERATIONS

- Visitors and family members who were in contact with a suspect case patient before hospitalization should be screened (fever and other symptoms) and appropriate quarantine precautions discussed with them per public health agency direction.
 - Visitor/family movement within the facility should be restricted to the patient care area and immediate surrounding area (ideally a designated family room or waiting area).
 - Visitors and family may have difficulty understanding the need for or complying with PPE use and infection prevention precautions. It may require substantial effort, possibly through interpreters, to help them understand the process and expectations.
 - \circ Avoid routine entry of visitors into patient rooms.
 - Exceptions to visitation restrictions may be considered on a case-by-case basis for those essential to patient well-being.
 - Provide instructions before entry into patient care area to:
 - Perform hand hygiene.
 - Limit touching of surfaces.
 - Use PPE according to potential diagnosis.
 - Evaluate the risks of visitation to the health of visitors/family and the community and their ability to comply with precautions.
 - Offer alternatives to visitation such as video-chats, phone, etc.

PUBLIC RELATIONS/INFORMATION CONSIDERATIONS

- If there is public knowledge about the suspect case, there may be tremendous interest from the media, advocacy groups, embassies, and other groups. The hospital should work with local and state public health, EMS, and emergency management through the Joint Information Center to craft messages about the situation and the impact/risk to the public.
- The hospital and public health department should monitor traditional and social media for inaccurate information and correct it as soon as possible as well as issue proactive messages to counter likely misinformation (e.g., about contagion risk).
- Hospital legal counsel should work with public relations and public health to assure that <u>HIPAA</u> requirements are followed.
- Public information officer/public relations staff should discuss with the patient and family any potential interview/information requests and confirm that there will be opportunity for the hospital to provide comment on any interviews granted.
- Public information officer/public relations staff should also work with incident command, administration, and infection prevention and control to craft messages for employees (and patients if needed) regarding the situation.







Special Considerations

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SECURITY CONSIDERATIONS

- Security personnel have many potential roles during a special pathogen response:
 - \circ Securing the area around the isolation room.
 - Addressing family member and visitor concerns regarding their limited access to other areas of the hospital.
 - \circ Preventing media from accessing the facility.
 - Securing elevators and cordoning off hallways, ambulance driveway, and other interior and exterior areas to enable safe patient movement.
- Security personnel must understand and be trained for any anticipated roles during a special pathogen response including safe use of PPE and providing services in PPE if required.
- The role of security in providing patient restraint should be agreed upon prior to any incident and specific training with the care teams is critical to the safety of the staff and patient.
- Frontline hospitals may require additional security personnel due to the multiple roles above. Supplemental or contract staff may not be trained in use of PPE and patient care techniques but can provide access controls and other services.

Deteriorating patients

- Frontline hospitals should plan to handle a wide range of severity of illness including patient deterioration during care.
- Delirium is a potential condition that can arise and requires special consideration and planning to avoid exposure. Delirium can cause the patient to become agitated and combative, possibly compromising provider PPE. Chemical and physical restraint policies should be in place and adequate staff should always be available in PPE to be able to immediately control behavior.
- Have a plan in place to safely manage the patient while in a potentially highly infectious environment and maintain safety in PPE. Key principles include:
 - \circ Prevent cross contamination.
 - \circ Increase distance from the patient.
 - \circ Always face patient and never turn your back on a combative or agitated patient.
 - Maintain effective communication with staff outside room if assistance is needed to manage a combative patient.
 - Exercise extreme caution when administering medications to an uncooperative patient, particularly via the intramuscular route.
 - Anticipate potential interventions and have supplies in the room and ready to minimize potential delays and mitigate hazards.
 - \circ Keep emergency medication readily accessible, if needed.









INTERFACILITY TRANSFER CONSIDERATIONS

- Detailed information for EMS is available in the EMS Infectious Disease Playbook.
- If a decision is made to transfer the patient to a treatment center, frontline facilities should consider the following steps:
 - \circ Consult with and notify internal and external stakeholders of the decision.
 - Activate HICS if not already activated.
 - Notify facility leadership.
 - Coordinate with state or local health department to obtain transfer approval, if required.
 - Coordinate with receiving facility to confirm patient information and estimated time of arrival as well as an accepting physician. Confirm that nursing and physician reports are called to the receiving hospital.
 - Coordinate with designated EMS agency to confirm locations, transfer point, timeline, staffing, and equipment required. Ensure EMS understands the potential diagnosis and that they have the appropriate resources.
 - Identify the patient movement team if an internal move is needed during the transfer process.
 - Designate EMS liaison if not already done.

Immediate actions include:

- Assemble the patient movement team/plan patient movement.
- Determine potential needs along the patient egress route (e.g., security, spill cleanup).
- Gather supplies and equipment (e.g., blankets, spill kit).
- Secure staff donning and doffing locations if required.
- Designate a facility stretcher or wheelchair for patient use for suspect VHF if EMS is not supplying.
- Ensure the patient movement team has donned appropriate PPE.

EMS liaison actions.

- Coordinate with EMS on patient movement.
- Verify any special EMS precautions/equipment are being addressed (e.g., isolation devices/ ambulance protection for VHF).
- Provide EMS updated patient status information and medical records.
- Verify EMS has donned appropriate PPE.
- Prepare the patient for movement.
 - Refer to <u>NETEC's Use of a Containment Wrap when Transferring a Patient with Ebola or Other</u> <u>Special Pathogen training video</u>.
 - Patient movement team decides on staff roles and positions.
 - Place patient on portable devices (e.g., oxygen, cardiac monitor, etc.).
 - Patient movement leader directs movement (e.g., bed to stretcher, bed to wheelchair, wheelchair to stair chair).
 - Clear and secure the egress route and patient transfer point at time of patient movement.
 - Patient movement team awaits confirmation that egress route is clear.
- Move patient.
 - Secure and control corridors/elevator, if needed, until egress is complete.
 - EMS moves patient to ambulance. Facility staff may assist at the request of EMS.



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- EMS loads and departs.
- Facility leadership notifies receiving facility of departure.
- The condition/mobility of the patient should be considered when planning patient movement.
 - For ambulatory patients:
 - Clear the egress path before escorting the patient from the isolation room to the transfer point.
 - Move slowly.
 - Be ready to guide the patient to the floor if the patient becomes weak.
 - For wheelchair-bound patients:
 - Lock wheelchair wheels before loading the patient.
 - Assist the patient in moving from the bed or chair to the wheelchair.
 - > Plan for potential of equipment/PPE contamination.
 - For EMS stretcher-bound patients:
 - > Make a patient movement plan with EMS before starting move.
 - Be ready to assist with patient movement if requested by EMS.
 - Always follow directions before moving or operating the EMS stretcher.

Recover.

- Isolation room and patient care devices are secured until disinfected.
- Staff doffs PPE and rehabilitates per protocol.
- Environmental services personnel are notified.
- Complete documentation.
 - Document the transfer events in the patient record as well as unusual occurrence/exposure log as needed.
- Attention to body mechanics during patient movement is an important component of worker safety and prevents:
 - Musculoskeletal strain.
 - Injury to the patient.
 - Overheating and fatigue while wearing PPE.
 - Inadvertent contamination/tears in PPF.

Resources:

- Adopting a Global Safety Standard for the Prevention of Ebola Needle-Stick Exposures
- Blood/Body Fluid Exposure Option
- Bloodborne Pathogens and Needlestick Prevention
- Care of a Neonate Born to a Mother who is Confirmed to have Ebola, is Person under Investigation, or has been Exposed to Ebola
- Crisis and Emergency Risk Communication (CERC)
- EMS Infectious Disease Playbook
- Example: Standard Operating Procedure (SOP) for Patient Handoff between a Healthcare Facility and a Transporting Ambulance
- Guidance for Developing a Plan for Interfacility Transport of Persons Under Investigation or Confirmed Patients with Ebola Virus Disease in the United States
- Guidance for Screening and Caring for Pregnant Women with Ebola Virus Disease for Healthcare Providers in U.S. Hospitals
- Management of Accidental Exposure to Ebola Virus in the Biosafety Level 4 Laboratory, Hamburg, Germany
- Use of a Containment Wrap when Transferring a Patient with Ebola or Other Special Pathogen



Screening

References

Exercises and Maintaining Readiness

- Maintaining readiness is a challenge. Given competing priorities, it is difficult to allocate resources to infrequent incidents. However, "ready or not, patients will present." Lack of readiness creates significant safety problems.
- Plan elements (e.g., PPE donning/doffing, patient management standard operating procedures [SOPs] and protocols) should be frequently tested by training staff and exercised with plausible, varied scenarios. The exercise templates listed under Resources below contain specific examples.
- Providers must have ready access to the correct sizes and types of PPE and understand when to apply which ensemble. Policies, algorithms, and templates must be easily available and understandable.
- Assess if the communicable disease response plan is following an "all hazards approach" in structure and activation and is scalable enough to apply to various communicable disease emergencies. Integrate infectious disease issues into emergency management processes/projects.
- Be aware of special pathogen disease outbreaks occurring around the world and latest CDC guidance.
- Training and education may be in the form of didactic (e.g., team meetings, discussing current events), experiential, or competency-based trainings (e.g., using equipment, performing procedures, and practicing communication while in PPE).
- Drills and exercises should include scenarios of varying type and scale and should involve internal and external partners (e.g., health department, EMS, obstetrics, laboratory, pediatrics, clinic). Exercises should use checklists including job action sheets, an activation checklist, and an equipment list whenever possible.
- Consider testing surveillance and initial actions on each shift by having a "mystery patient" present for evaluation. After the "identify" goal is met, it is recommended the evaluator/"mystery patient" reveals that it is an exercise and then asks the provider to take them through the subsequent actions required (similar to a "tracer" inspection event).
- Consider outside expert observers to assist with evaluation of exercises and competency testing of staff.
- A hotwash should be done within hours after conclusion of an exercise or an episode of care. It should capture initial observations on what went well and what can be improved, recognize the staff efforts, and acknowledge emotional stress and impact. As part of formal after-action process, emergency management should review the response and care provided and create a corrective action plan to address identified gaps.









Special Considerations Exercises

References and Resources

- Restocking is critical to maintaining readiness for future incidents. Activities include:
 - Reviewing the activation equipment/supply checklist to identify items for replacement, as well as new items or those that require modification.
 - \circ Inventorying and restocking equipment and supplies after an incident or exercise.
 - \circ Taking inventory of items used or currently in stock.
 - \circ Purchasing additional equipment and supplies used to replenish stock and any reserves.



Resources:

- ► Ebola Drill, Functional and Full-Scale Exercise Template NETEC
- Ebola Tabletop Exercise Template NETEC
- Exercise Templates for Frontline Facilities MN Dept. of Health
- Frontline Facility Special Pathogen (Airborne) Tabletop Exercise Template NETEC
- ▶ New York City Health + Hospitals Mystery Patient Exercise Plan: Exercise Plan, Appendix I, and Appendix J
- Special Pathogen Mystery Drill Toolkit Drill, Functional, and Full-Scale Template NETEC



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References and Resources

ASPR TRACIE. (2017). EMS Infectious Disease Playbook.

This playbook synthesizes multiple sources of information in a single planning document addressing the full spectrum of infectious agents to create a concise reference resource for emergency medical services (EMS) agencies developing their service policies. The information can be incorporated into agency standard operating procedures and reviewed by the EMS medical director.

Boggild, A., Esposito, D., Kozarsky, P., et al. (2015). Differential Diagnosis of Illness in Travelers Arriving from Sierra Leone, Liberia, or Guinea: A Cross-Sectional Study from the GeoSentinel Surveillance Network. Annals of Internal Medicine. 162(11):757-764.

The authors examined reported illnesses among travelers returning from Sierra Leone, Liberia, or Guinea during the West Africa Ebola outbreak. They emphasize the importance of considering differential diagnoses during such outbreaks and avoiding delays in diagnosis and management of patients.

Centers for Disease Control and Prevention. (2007). 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings.

This document provides infection control guidelines for healthcare settings across the continuum of care.

Centers for Disease Control and Prevention. (2007). 2007 Guideline for Isolation Precautions: Preventing Transmission of Infectious Agents in Healthcare Settings, Appendix A.

Though somewhat dated, this table provides a good association of selected infections and conditions with the type and duration of precautions.

Centers for Disease Control and Prevention. (2009). Biosafety in Microbiological and Biomedical Laboratories (BMBL) 5th Edition.

This document provides best practices for biosafety in biomedical and clinical laboratories.

Centers for Disease Control and Prevention. (2013). Blood/Body Fluid Exposure Option.

This document assists healthcare facilities in recording HCW bloodborne pathogen exposures and their management.

Centers for Disease Control and Prevention. (2018). Care of a Neonate Born to a Mother who is Confirmed to have Ebola, is a Person under Investigation, or has been Exposed to Ebola.

These guidelines pertain to U.S. hospitals and how to care for a neonate born to a mother who is confirmed to have Ebola, is a Person under Investigation (PUI), or has been exposed to the Ebola virus.



Exercises

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Centers for Disease Control and Prevention. (2018). Crisis and Emergency Risk Communication (CERC). This website hosts the Centers for Disease Control and Prevention's crisis and emergency risk communication training modules, resources, shared learning materials (e.g., case studies), and social media links.

Centers for Disease Control and Prevention. (2015). Ebola-Associated Waste Management.

The information on this webpage helps healthcare providers and facility staff safely handle, transport, and dispose of waste associated with the care of patients with suspected or confirmed EVD.

Centers for Disease Control and Prevention. (2016). Example: Standard Operating Procedure (SOP) for Patient Handoff between a Healthcare Facility and a Transporting Ambulance.

This sample SOP is intended to enable planning between an EMS agency and a healthcare facility on the handoff of patients with serious communicable diseases.

Centers for Disease Control and Prevention. (2015). For U.S. Healthcare Settings: Donning and Doffing Personal Protective Equipment (PPE) for Evaluating Persons Under Investigation (PUIs) for Ebola Who Are Clinically Stable and Do Not Have Bleeding, Vomiting, or Diarrhea.

This document provides guidance to healthcare workers on donning and doffing personal protective equipment while evaluating a clinically stable person under investigation who does not have bleeding, vomiting, or diarrhea.

Centers for Disease Control and Prevention. (2016). Frequently Asked Questions on Screening for Ebola Virus Disease for Providers, Healthcare Facilities and Health Departments.

This webpage includes frequently asked questions related to screening for Ebola virus disease.

Centers for Disease Control and Prevention. (2018). Guidance for Collection, Transport and Submission of Specimens for Ebola Virus Testing.

This document provides guidance to laboratories on the collection, transport, and submission of specimens for Ebola testing. It contains information on when and how to collect specimens, transport of samples within and outside a facility, and information on how to ship specimens to CDC, including a packaging diagram.

Centers for Disease Control and Prevention. (2016). Guidance for Developing a Plan for Interfacility Transport of Persons Under Investigation or Confirmed Patients with Ebola Virus Disease in the United States.

This guidance was developed for personnel engaged in planning for the ground/air transport of persons under investigation or patients with confirmed Ebola virus disease. Additional guidance is provided on developing standard operating procedures for patient handoff between facilities and air-to-ground patient handoff.





Centers for Disease Control and Prevention. (2015). <u>Guidance for Safe Handling of Human Remains of</u> <u>Ebola Patients in U.S. Hospitals and Mortuaries</u>.

The document provides step-by-step guidance on safe handling of human remains that may contain Ebola virus to those providing postmortem care in hospitals and mortuaries.

Centers for Disease Control and Prevention. (2018). Guidance for Screening and Caring for Pregnant Women with Ebola Virus Disease for Healthcare Providers in U.S. Hospitals.

This webpage provides guidance for healthcare workers on screening and treating suspected or confirmed cases of Ebola in pregnant women.

Centers for Disease Control and Prevention. (2018). <u>Guidance for U.S. Laboratories for Managing and</u> Testing Routine Clinical Specimens When There is a Concern about Ebola Virus Disease.

This webpage provides guidance to laboratorians and others who may handle or test routine clinical specimens when there is concern about Ebola virus disease. It provides an overview of management and testing considerations and links to additional specific guidance.

Centers for Disease Control and Prevention. (2015). Guidance on Personal Protective Equipment (PPE) To Be Used By Healthcare Workers during Management of Patients with Confirmed Ebola or Persons under Investigation (PUIs) for Ebola who are Clinically Unstable or Have Bleeding, Vomiting, or Diarrhea in U.S. Hospitals, Including Procedures for Donning and Doffing PPE.

This webpage includes guidance on the types of personal protective equipment (PPE) that should be used by those caring for patients with Ebola. It also includes steps for donning and doffing PPE as well as what trained observers should do to ensure these steps are followed.

Centers for Disease Control and Prevention. (n.d.). <u>Guideline for Disinfection and Sterilization in</u> <u>Healthcare Facilities (2008)</u>. (Accessed 5/6/2019).

This guidance provides an overview of performance characteristics of various disinfectants to assist in selection.

Centers for Disease Control and Prevention. (2016). Identify, Isolate, Inform: Emergency Department Evaluation and Management for Patients Under Investigation (PUIs) for Ebola Virus Disease (EVD).

This guidance provides information to emergency department personnel on how to implement the identify, isolate, and inform strategy when screening patients for Ebola virus disease.

Centers for Disease Control and Prevention. (2017). In the Absence of SARS-CoV Transmission Worldwide: Guidance for Surveillance, Clinical and Laboratory Evaluation, and Reporting.

This webpage provides guidance on surveillance, clinical and laboratory evaluation, and reporting related to SARS.



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Centers for Disease Control and Prevention. (2019). Infectious Diseases Laboratory Test Directory, Version 9.2.

This directory provides test ordering information for all CDC laboratory testing.

Centers for Disease Control and Prevention. (2015). Information on the Survivability of the Ebola Virus in Medical Waste.

This webpage includes information on physical and chemical agents that can be used to dispose of waste generated during the care of a patient with Ebola virus disease.

Centers for Disease Control and Prevention. (2018). Interim Guidance for Environmental Infection Control in Hospitals for Ebola Virus.

This webpage provides information on infection control precautions for healthcare facilities caring for patients under investigation or confirmed Ebola virus disease and particularly the cleaning and disinfection of the facility environment.

Centers for Disease Control and Prevention. (2015). Interim Guidance for Preparing Frontline Healthcare Facilities for Patients Under Investigation (PUIs) for Ebola Virus Disease (EVD).

This guidance outlines the identify, isolate, and inform strategy for the management of patients under investigation for Ebola virus disease and actions frontline facilities should take to improve their preparedness.

Centers for Disease Control and Prevention. (2015). Interim Guidance for U.S. Hospital Preparedness for Patients Under Investigation (PUIs) or with Confirmed Ebola Virus Disease (EVD): A Framework for a Tiered Approach.

This guidance describes the tiered approach to the management of patients under investigation or confirmed to have Ebola virus disease. It outlines the responsibilities at each tier: frontline facilities, assessment hospitals, and treatment centers.

Centers for Disease Control and Prevention. (2015). Interim Infection Prevention and Control Recommendations for Hospitalized Patients with Middle East Respiratory Syndrome Coronavirus (MERS-CoV).

This webpage provides recommendations for preventing transmission of MERS-CoV in healthcare settings.

Centers for Disease Control and Prevention. (2014). Packaging and Shipping Clinical Specimens. Diagram.

This diagram shows the triple packaging system for the shipment of Category A infectious substances.





Centers for Disease Control and Prevention. (2014). <u>Powered Air-Purifying Respirator (PAPR) and Gown</u> <u>Donning and Doffing Procedures</u>.

This video shows how to don and doff personal protective equipment when using a PAPR.

Centers for Disease Control and Prevention. (2018). Preparing U.S. Hospitals for Ebola.

This infographic highlights the differences between a frontline healthcare facility, an Ebola assessment hospital, and an Ebola treatment center.

Centers for Disease Control and Prevention. (2015). <u>Procedures for Safe Handling and Management of</u> <u>Ebola-Associated Waste</u>.

The webpage provides information for hospital infection control, occupational health systems, and facility medical waste personnel on the safe handling and management of waste generated in the care of patients infected with Ebola virus disease.

Centers for Disease Control and Prevention. (2005). <u>Public Health Guidance for Community-Level</u> <u>Preparedness and Response to Severe Acute Respiratory Syndrome (SARS) Supplement I: Infection Control</u> <u>in Healthcare, Home, and Community Settings</u>.

This web page contains links to guidance on SARS infection control in various settings.

Centers for Disease Control and Prevention. (2015). <u>Recommendations for Safely Performing Acute</u> <u>Hemodialysis in Patients with Ebola Virus Disease (EVD) in U.S. Hospitals</u>.

The Centers for Disease Control and Prevention provide this guidance for individuals performing renal replacement therapy in patients with Ebola.

Centers for Disease Control and Prevention. (2018). Travel Health Notices.

This web page, searchable by disease or country name, lists all current CDC travel notices. Notices are classified as Watch Level 1: Practice Usual Precautions, Alert Level 2: Practice Enhanced Precautions, and Warning Level 3: Avoid Nonessential Travel.

Centers for Disease Control and Prevention. (2014). <u>UN 3373 Category B Schematic for Packaging</u>. This diagram shows the packaging requirements to ship Category B infectious substances.

Centers for Disease Control and Prevention. (2017). Yellow Book.

Chapter 3 focuses on infectious diseases related to travel and includes information on transmission, epidemiology, clinical presentation, diagnosis, and treatment. Chapter 5 includes information on assessing illnesses in returned travelers, including elements of a complete medical history, illnesses associated with fever in the first two weeks following travel, common syndromes, and management.



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Centers for Medicare and Medicaid Services. (2016). Emergency Preparedness Requirements for Medicare and Medicaid Participating Providers and Suppliers Final Rule.

This rule establishes consistent emergency preparedness requirements for health care providers participating in Medicare and Medicaid, increases patient safety during emergencies, and establishes a more coordinated response to natural and man-made disasters.

DeCarli, G., Fusco, F., Puro, V., et al. (2015). Adopting a Global Safety Standard for the Prevention of

Ebola Needle-Stick Exposures. Infection Control and Hospital Epidemiology. 36(6):745-746. This editorial emphasizes the importance of using safety devices to prevent needlestick injuries among

healthcare personnel managing patients with highly infectious diseases.

Domestic Resilience Group. (2017). Interim – Planning Guidance for the Handling of Solid Waste Contaminated with a Category A Infectious Substance.

This federal inter-agency guidance approved by the Domestic Resilience Group of the National Security Council is for the safe handling of Category A contaminated solid waste.

Environmental Protection Agency. (n.d.). List L: Disinfectants for Use Against the Ebola Virus. (Accessed 5/6/2019).

The EPA lists products that meet the CDC's criteria for use against the Ebola virus on hard, non-porous surfaces. Products are listed by name and indicate whether they are approved for use in hospital/ healthcare facilities, institutions such as schools and offices, and residences.

Georgia Department of Public Health. (n.d.). Travel Clinical Assistant. (Accessed 5/6/2019). This webpage provides post-travel clinical information for travel-related diseases, searchable by entering a country name or clicking its location on a map.

Government Publishing Office. (n.d.). Code of Federal Regulations Title 49 Subtitle B Chapter I Subchapter C – Hazardous Materials Regulations. (Accessed 5/6/2019).

These regulations govern the safe and secure transportation of hazardous materials in commerce.

Gunther, S., Feldmann, H., Geisbert, T., et al. (2011). Management of Accidental Exposure to Ebola Virus in the Biosafety Level 4 Laboratory, Hamburg, Germany. The Journal of Infectious Diseases. 204(suppl_3):S785-S790.

The authors describe a needlestick injury involving Zaire ebolavirus and the use of an experimental vaccine for post exposure prophylaxis.





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International Air Transport Association. (2017). Dangerous Goods Regulations.

These regulations outline transport requirements for dangerous goods including infectious substances, radioactive material, and corrosives.

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Minnesota Department of Health, Association for Professionals in Infection Control and Epidemiology-Minnesota, and Health Care Coalitions of Minnesota. (2018). High Consequence Infectious Disease (HCID) Toolbox for Frontline Health Care Facilities.

This toolbox includes a variety of resources to assist frontline facilities in their readiness activities related to patients with high consequence infectious diseases. Included are planning and training tools, exercise templates, and the components (e.g., screening guide, checklists, posters) to create a readiness binder.

National Ebola Training and Education Center. (n.d.). Online Courses. (Accessed 5/6/2019). This webpage includes links to free, online training courses developed by NETEC.

National Ebola Training and Education Center. (n.d.). <u>Resource Repository</u>. (Accessed 5/6/2019).

This webpage includes links to training and other helpful resources specific to special pathogens (e.g., Ebola and MERS).

National Institute for Occupational Safety and Health. (2018). Considerations for Selecting Protective Clothing used in Healthcare for Protection against Microorganisms in Blood and Body Fluids.

This webpage of the National Personal Protective Technology Laboratory provides background information on understanding different types of worker exposures, discusses the selection of protective clothing, identifies current healthcare protective clothing standards and specifications, and includes links to additional information.

National Institute for Occupational Safety and Health. (2018). Hierarchy of Controls.

This webpage provides a graphical illustration and describes the hierarchy of controls to protect workers from occupational hazards.

National Institute for Occupational Safety and Health. (1998). Selecting, Evaluating, and Using Sharps **Disposal Containers.**

This document outlines the performance criteria and existing standards related to sharps disposal containers and provides criteria for the selection of containers to be used as part of a healthcare facility's needlestick injury prevention plan.

Nebraska Medicine. (2019). MERS Co-V ED Screening Protocol.

This algorithm shows the Nebraska Medical Center emergency department screening protocol for MERS Co-V.



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Nebraska Medicine. (n.d.). <u>MERS Co-V Guidelines for Respiratory Care Services</u>. (Accessed 12/12/2018). These guidelines identify respiratory therapy modalities to be used based on indications and patient treatment needs.

Nebraska Medicine. (2017). <u>Middle East Respiratory Syndrome Coronavirus (MERS Co-V) Lab Protocol for</u> Person Under Investigation (PUI) Main Campus.

This document describes the laboratory protocol used by Nebraska Medicine for MERS Co-V.

New England Journal of Medicine. (2009). <u>NEJM Procedure: Collection of Nasopharyngeal Specimens</u> with the Swab Technique.

This video demonstrates how to collect nasopharyngeal specimens.

New York City Department of Health and Mental Hygiene. (2014). <u>NYC DOHMH Guidance Document</u> for Development of Protocols for Management of Patients Presenting to Hospital Emergency Departments and Clinics with Potentially Communicable Diseases of Public Health Concern.

This document provides guidance to healthcare facilities on developing or updating protocols for screening and isolation of patients potentially infected with a communicable disease.

New York City Health + Hospitals. (2017). Mystery Patient Exercise Plan.

The plan serves as a template to support health care delivery sites for highly infectious disease preparedness and response through exercises. It provides exercise participants with the necessary tools to conduct Mystery Patient Drills and the flexibility to adapt the exercise to the individualized needs of each facility and the varied composition of each local community.

New York State Department of Health. (2003). <u>New York State Department of Health SARS Guidance</u> Document, Chapter 4: Laboratory Diagnosis of SARS.

This chapter of a larger guidance document provides information on laboratory testing related to SARS, including which tests will be performed, safety precautions when handling specimens, and how to collect, test, and ship specimens.

North Shore-LIJ Health System. (2014). Ebola Virus Disease (EVD) Preparedness Manual.

This manual offers best practices on preparedness of healthcare facilities for Ebola virus disease.

Occupational Safety and Health Administration. (2012). <u>Bloodborne Pathogens (29 CFR 1910.1030</u>). This page contains the regulatory language for the bloodborne pathogens standard.



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Occupational Safety and Health Administration. (n.d.). <u>Bloodborne Pathogens and Needlestick</u>

Prevention. (Accessed 7/13/2018).

This webpage provides an overview of bloodborne pathogens and links to information on guidance, enforcement, hazard recognition, standards, and evaluating and controlling exposures.

Occupational Safety and Health Administration. (2016). <u>Cleaning and Decontamination of Ebola on</u> <u>Surfaces: Guidance for Workers and Employers in Non-Healthcare/Non-Laboratory Settings</u>.

This factsheet provides guidance on Ebola cleaning and decontamination procedures for those who work in non-healthcare and non-laboratory settings. Links to information on disinfectants, waste disposal, and personal protective equipment are provided throughout the document.

Occupational Safety and Health Administration. (n.d.). <u>MERS Control and Prevention</u>. (Accessed 5/6/2019).

This webpage includes background information, guidance, and links to resources for specific types of workers who may be exposed to MERS-contaminated environments.

Occupational Safety and Health Administration. (n.d.). Ebola Control and Prevention. (Accessed 5/6/2019).

This webpage includes background information, guidance, and links to resources for specific types of workers who may be exposed to Ebola-contaminated environments.

Occupational Safety and Health Administration. (2016). PPE (29 CFR 1910.132).

This standard provides information on the selection and use of PPE based on an assessment of potential hazards.

Occupational Safety and Health Administration. (2014). <u>PPE Selection Matrix for Occupational Exposure</u> to Ebola Virus.

The U.S. Department of Labor shares information on the type of PPE to be worn in various situations (e.g., normal work activities, casual interaction, providing medical and supportive care, cleaning and disinfecting environments, and dealing with waste).

Occupational Safety and Health Administration. (2011). Respiratory Protection (20 CFR 1910.134).

This standard details requirements and criteria for respiratory protection. This webpage provides the major requirements for this standard, to include: respiratory protection program, selection of respirators, medical evaluation, fit testing, use of respirators, maintenance and care, training and information, and program evaluation.



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Occupational Safety and Health Administration, National Institute of Occupational Safety and Health, and Environmental Protection Agency. (2016). Safe Handling, Treatment, Transport and Disposal of Ebola-Contaminated Waste.

This fact sheet provides a step-by-step summary of actions workers should take from the point Ebolacontaminated waste is generated through final disposal.

Office of the Assistant Secretary for Preparedness and Response (2016). 2017-2022 Health Care

Preparedness and Response Capabilities. U.S. Department of Health and Human Services.

This 70-page document describes the four capabilities that healthcare coalitions and individual healthcare facilities need to prepare for, respond to, and recover from emergencies. The capabilities are: foundation for healthcare and medical readiness; healthcare and medical response coordination; continuity of healthcare service delivery; and medical surge.

Office of the Assistant Secretary for Preparedness and Response. (2017). Hospital Preparedness Program (HPP) Measure Manual: Implementation Guidance for Ebola Preparedness Measures.

This manual provides implementation guidance on performance measures for awardees receiving federal funds for Ebola preparedness and response through the Hospital Preparedness Program.

Office of the Assistant Secretary for Preparedness and Response. (2017). Regional Treatment Network for Ebola and Other Special Pathogens.

This report provides information on the regional treatment network established for the management of patients with Ebola and other special pathogens, its oversight and financing, the current state of preparedness, and planning and future considerations.

Sehulster, L. and Chinn, R. (2003). Guidelines for Environmental Infection Control in Health-Care Facilities: Recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC). MMWR Recommendations and Reports. 52(RR10):1-42

These recommendations review previous infection prevention guidelines and provide evidence-based recommendations for environmental infection control in healthcare facilities.

World Health Organization. (2007). Standard Precautions in Health Care.

This fact sheet provides background information and advice, a checklist, and key elements for standard precautions in healthcare facilities.







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INDEX OF ABBREVIATIONS

ABHR	alcohol-based hand rub
AIIR	airborne infection isolation room
ARDS	acute respiratory distress syndrome
ASPR	Assistant Secretary for Preparedness and Response
BSL	biosafety level
CBC	complete blood count
CDC	Centers for Disease Control and Prevention
CFR	Code of Federal Regulations
СМО	chief medical officer
CNO	chief nursing officer
CRRT	continuous renal replacement therapy
DOT	U.S. Department of Transportation
ECMO	extracorporeal membrane oxygenation
ED	emergency department
EHR	electronic health record
EMS	emergency medical services
EMTALA	Emergency Medical Treatment and Labor Act
EPA	U.S. Environmental Protection Agency
ESF	emergency support function
EVD	Ebola virus disease
GI	gastrointestinal
HCID	high consequence infectious disease
HCW	health care worker





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HEPA	high-efficiency particulate air
HHS	U.S. Department of Health and Human Services
HICS	hospital incident command system
HIPAA	Health Insurance Portability and Accountability Act
HMR	Hazardous Materials Regulations
IATA	International Air Transport Association
INR	international normalized ratio
MERS	Middle East Respiratory Syndrome
NETEC	National Ebola Training and Education Center
NIOSH	National Institute for Occupational Safety and Health
OSHA	Occupational Safety and Health Administration
PAPR	powered air-purifying respirator
PPE	personal protective equipment
РТ	prothrombin time
PUI	person under investigation
SARS	severe acute respiratory syndrome
SOP	standard operating procedure
TRACIE	Technical Resources, Assistance Center, and Information Exchange
VHF	viral hemorrhagic fever

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Consider-

ELECTRONIC HEALTH RECORD SCREENING SAMPLE QUESTIONS

Symptom Screening

Has the patient had any of the following symptoms in the last week?

(select fever, cough or respiratory symptoms, rash)

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Travel Screening

Has the patient traveled outside of the U.S. in the last month?	(select yes/no)
If yes, which regions were visited?	(select from list from multipick)
African countries	(select from list)
South Asian countries	(select from list)
Central American countries	(select from list)
North American countries	(select from list)
South American countries	(select from list)
European countries	(select from list)
Middle Eastern countries	(select from list)
Australian and Oceanic countries	(select from list)
Caribbean countries	(select from list)
Asian countries	(select from list)

Exposure Screening

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Has the patient been in close contact with someone with a known communicable disease in the last month?	(select yes/no)
If yes, which disease?	(select from list)
When was the exposure date?	(select from list)







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ISOLATION ROOM SUPPLY LIST EXAMPLE

Disposable Medical Supplies Cart
Stethoscope
Thermometer
Blood pressure cuff (range of sizes)
Emesis bags (preferred to basin)
Absorbent pads/Chux
Gauze sponges
Basins
Bedside commode
Respiratory supplies – oxygen masks, cannula, tubing, suction
Infusion supplies – IV drip tubing, IV fluids
Phlebotomy supplies – including blood draw and IV start
Specimen transport boxes from lab (i.e., triple packing system)
Spill Kit
Absorbent pad with fluid-resistant backing/Chux
Absorbent pads
Bleach 1:10 solution or other EPA-registered hospital disinfectant
Bleach wipes or other EPA-registered hospital disinfectant
Mop bucket
Mop pole
Clean mop head
Broom with removable handle
Long handled dust pan with removable handle
Cut resistant gloves

This list assumes the isolation room has standard headers with electrical, oxygen, and suction available. These supplies may be housed in the room, in boxes, or on dedicated carts, but they should be assembled and easily accessible.







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Autoclave bag-lined trash can x2

Solidifier (if using)

Disposable cardboard spatula (if using)

Spill protocol

Waste Kit

Leak-proof biohazard bags with a minimum thickness of 1.5 mils and a capacity of 175 liters or less

Approved sharps container

Waste bin (larger and multiple compared to usual patient rooms)

Transport cart

Absorbent disposable towels and disposable cleaning cloths

EPA-registered hospital disinfectant solutions and cloths

ABHR

Dedicated Patient Equipment

IV poles

Vital signs/cardiac monitor/oxygen saturation monitor

Glucometer

Patient phone

Translator phone (if necessary)

Tablet computer/slate for patient, television, white board/dry erase markers

Facial tissue

Urinal to patient care supplies

Dedicated Linen

Disposable sheets

Blankets

Patient gowns

Towels and washcloths







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UNIVERSAL SCREENING SIGN EXAMPLE

ATTENTION ALL PATIENTS Cough? Fever? Rash?



PLEASE TAKE A MASK!

If no masks are available, please use a tissue to cover your nose and mouth when coughing or sneezing.



REPORT YOUR SYMPTOMS AND TRAVEL HISTORY

Alert staff if you, or someone you have had close contact with has been ill and recently traveled internationally.



CLEAN YOUR HANDS OFTEN

Use an alcohol-based hand cleaner or wash with soap and water. Clean hands save lives!









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DOOR SIGN EXAMPLE

SPECIAL PATHOGEN BASIC PPE

- Fit-tested N95 or equivalent/higher respirator
- Fluid-resistant gown that extends to at least mid-calf
- Nitrile gloves with extended cuff 2 pairs
- Face shield
- Consider booties and head cover









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The Infectious Disease

Dashboard, electronically linked within NYC Health + Hospitals electronic medical records system (screenshot to the right) serves as a decision-support tool for screening and patient management.







Special Pathogen Basic Personal Protective Equipment Donning Checklist Example

Step #	Task	Criteria	Completed
19	Gather PPE in proper sizes	 Fluid resistant gown N95 respirator Nitrile gloves, extended cuff (2 pairs – inner and outer) Face shield Booties (optional) Head cover (optional) 	❑ Yes ❑ No
2 §	Prepare to don PPE	 Trained observer present with checklist OUTSIDE of the patient's room in designated donning area Remove watches, jewelry, and dangling items that could interfere with integrity of PPE Secure eyeglasses with a tie Hydrate and attend to personal hygiene Consider medical screening if entering for shift per facility policy 	□ Yes □ No
3§	Inspect PPE	• Inspect PPE for serviceability (e.g., not torn or ripped) and proper size	□ Yes □ No
4 §	Perform hand hygiene	Perform hand hygiene with alcohol-based hand sanitizer	❑ Yes ❑ No
5 §	Don nitrile gloves	Don inner gloves and extend cuffs up arms	❑ Yes ❑ No
6 §	Don booties, if wearing	Sit down and pull on booties	❑ Yes ❑ No
7 §	Don fluid resistant gown	 Fully cover torso from neck to knees and arms to end of wrists; leave no skin exposed Fasten at the back of neck; tie at waist Do not tie inside ties Ensure no trip hazard exists 	□ Yes □ No
8 §	Don N95 respirator	Don N95 respirator and check for seal	□ Yes □ No
9 §	Don head cover, if wearing	Contain hair and cover ears	□ Yes □ No

Colored steps indicate location: Red (†) = In patient room Yellow (‡) = In designated decontamination area Green (§) = In cold/clean zone outside decontamination area

Reference: For U.S. Healthcare Settings: Donning and Doffing Personal Protective Equipment (PPE) for Evaluating Persons Under Investigation (PUIs) for Ebola Who Are Clinically Stable and Do Not Have Bleeding, Vomiting, or Diarrhea



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Step #	Task	Criteria	Completed
10§	Don face shield	Position shield above eyebrows and mid-forehead to cover eyes	❑ Yes ❑ No
11 §	Don nitrile gloves	 Don outer gloves Extend to cover the sleeves or cuffs of the gown Tuck excess material at sleeve into cuff 	□ Yes □ No
12 [§]	Inspection	 Extend arms and verify integrity of PPE with observer: Bend at waist Squat and return to standing position Slowly turn in circle for final inspection Observer marks suit with wearer's name and time donned 	❑ Yes ❑ No
13 [§]	Reminder	 Keep hands away from all mucous membranes Review hand signals for "OK," "not OK," and "coming out" 	□ Yes □ No



Colored steps indicate location: Red (†) = In patient room Yellow (‡) = In designated decontamination area Green (§) = In cold/clean zone outside decontamination area







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Special Pathogen Basic Personal Protective Equipment Doffing Checklist Example

Step #	Task	Criteria	Completed
1‡	Trained Observer ¹	 Engage the trained observer outside patient room with the checklist Determine contact time requirement for disinfectant wipe per product label 	□ Yes □ No
2†	Inspect PPE	 In patient room:[†] Inspect PPE for soiling or breaches If PPE is visibly contaminated, disinfect by using an EPA-registered disinfectant wipe (allow contact time per product label) 	□ Yes □ No
3†	Perform hand hygiene	• Perform hand hygiene by using an EPA-registered disinfectant wipe (allow contact time per product label) or with alcohol-based hand sanitizer	❑ Yes ❑ No
4 †	Doff outer gloves	 Using gloved hand, grasp the palm area of the other gloved hand and peel off first glove Hold the removed glove in the opposite gloved hand Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining outer glove over the first glove Discard both outer gloves in the infectious waste container 	❑ Yes ❑ No
5†	Disinfect inner gloves	 Inspect outer surface of gloves for visible contamination, cuts, or tears If no visible contamination is identified on the inner gloves Disinfect the inner-gloved hands with either an EPA-registered disinfectant wipe (allow contact time per product label) or alcohol-based hand sanitizer If an inner glove is visibly soiled Disinfect the glove with an EPA-registered disinfectant wipe (allow contact time per product label) Remove the inner gloves Using the gloved hand, grasp the palm area of the other gloved hand and peel off the first glove Hold the removed glove in the opposite gloved hand Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining outer glove over the first glove Discard both inner gloves in the infectious waste container Perform hand hygiene with alcohol-based hand sanitizer on bare hands Don a new pair of inner gloves If a cut or tear is detected on an inner glove, immediately initiate occupational exposure protocol 	□ Yes □ No

¹ Trained observers are most important if VHF is suspected, their use is optional for special respiratory pathogens

Colored steps indicate location: Red (†) = In patient room Yellow (‡) = In designated decontamination area Green (§) = In cold/clean zone outside decontamination area



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Step #	Task	Criteria	Completed
6†	Doff face shield	 Face shield is considered contaminated Remove by tilting the head slightly forward, grasping the rear strap and pulling it gently over the head and allowing the face shield to fall forward Discard in the infectious waste container 	□ Yes □ No
7†	Perform hand hygiene	 Perform hand hygiene and disinfect inner-gloved hands with alcohol-based hand sanitizer 	❑ Yes ❑ No
8†	Doff head cover, if wearing	Remove and discard in infectious waste container	□ Yes □ No
9†	Perform hand hygiene	Disinfect inner-gloved hands with alcohol-based hand sanitizer	❑ Yes ❑ No
10 †	Doff fluid resistant gown	 Front and sleeves are potentially contaminated Pull the gown away from the body until the ties break Remove gown by pulling the gown away from the neck and shoulders, touching the inside only As the gown is rolled away from the body it is turned inside out, folded, or rolled into a bundle and discarded into an infectious waste container 	□ Yes □ No
11†	Perform hand hygiene	Disinfect inner-gloved hands with alcohol-based hand sanitizer	□ Yes □ No
12 †	Doff booties, if wearing	 Sitting on a clean and stable surface at the border of the patient's room and the designated decontamination area, remove booties one at a time Discard in infectious waste container 	❑ Yes ❑ No
13 †	Perform hand hygiene	Disinfect inner-gloved hands with alcohol-based hand sanitizer	❑ Yes ❑ No
14†	Doff inner gloves	 Using gloved hand, grasp the palm area of the other gloved hand and peel off first glove Hold the removed glove in the opposite gloved hand Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining inner glove over the first glove Discard both inner gloves in the infectious waste container 	□ Yes □ No
15 †	Don new pair of gloves	Clean bare hands with alcohol-based hand sanitizerDon a new pair of nitrile gloves	□ Yes □ No

Colored steps indicate location: Red (†) = In patient room Yellow (‡) = In designated decontamination area Green (§) = In cold/clean zone outside decontamination area







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Step #	Task	Criteria	Completed
16 ‡	Relocate	Move to designated doffing area [‡]	❑ Yes ❑ No
17 ‡	Remove N95 respirator	 Remove N95 respirator from the back to front and discard in the infectious waste container 	❑ Yes ❑ No
18‡	Doff gloves	 Using gloved hand, grasp the palm area of the other gloved hand and peel off Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining glove Discard in the infectious waste container 	❑ Yes ❑ No
19‡	Perform hand hygiene	 Wash or clean hands with an alcohol-based hand sanitizer; hands completely dry before exiting the area 	❑ Yes ❑ No
20 ‡	Inspect	 Perform a final inspection of the surgical scrubs or disposable garments. If contamination is identified, carefully remove the garments and shower immediately 	□ Yes □ No
21 [§]	Follow up	 Perform staff rehab, medical monitoring, documentation, and behavioral wellness check as indicated 	□ Yes □ No

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Exercises

VHF Personal Protective Equipment Donning Checklist Example

Step #	Task	Criteria	Completed
18	Gather PPE in proper sizes	 N95 respirator mask Face shield Impermeable gown Nitrile gloves, extended cuff, non-sterile (inner) Nitrile gloves, extended cuff, non-sterile (outer) Surgical hood Impermeable knee high shoe cover Impermeable apron (for patient with significant body fluid losses/exposure risk) 	❑ Yes ❑ No
2 §	Prepare to don PPE	 Trained observer present with checklist OUTSIDE[®] of the patient's room Remove watches, jewelry and dangling items that could interfere with integrity of PPE Secure eyeglasses with a tie Hydrate and attend to personal hygiene Consider medical screening if entering for shift per facility policy 	❑ Yes ❑ No
3 §	Inspect PPE	• Inspect PPE for serviceability (e.g., not torn or ripped) and proper size	❑ Yes ❑ No
4 §	Perform hand hygiene	Perform hand hygiene with alcohol-based hand sanitizer	❑ Yes ❑ No
5 §	Don gloves	Don inner gloves	❑ Yes ❑ No
6 [§]	Don impermeable gown	 Fully cover torso from neck to knees; arms to end of wrists Fasten at the back of neck; tie at waist Do not tie inside ties Ensure no trip hazard exists 	□ Yes □ No
7 §	Don impermeable knee high shoe covers	Sit down and pull on impermeable knee high shoe covers	□ Yes □ No

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Special Respiratory



Exercises

References and Resources

Step #	Task	Criteria	Completed
8 §	Don N95 respirator	Don N95 respirator and check for seal	❑ Yes ❑ No
9§	Don surgical hood	 Ensure that the hood covers all the hair and ears Place hood over the mask and secure appropriately Recheck that eyeglasses are secured Recheck N95 respirator for seal 	□ Yes □ No
10 [§]	Don outer nitrile gloves	 Extend to cover the sleeves or cuffs of the gown Tuck excess material at sleeve into cuff 	□ Yes □ No
11 [§]	Don impermeable apron, if needed	 Don impermeable apron over hood Secure apron ties as necessary 	□ Yes □ No
12§	Don face shield	Position shield above eyebrows and mid-forehead to cover eyes	❑ Yes ❑ No
13 [§]	Inspection	 Extend arms and verify integrity of PPE with observer – no exposed skin Bend at waist Squat and return to standing position Slowly turn in circle for final inspection Observer marks suit with wearer's name and time donned 	❑ Yes ❑ No
14 [§]	Reminder	 Keep hands away from all mucous membranes Review hand signals – "OK," "not OK," and "coming out" 	□ Yes □ No



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Special Respiratory



Exercises

References and Resources

VHF Personal Protective Equipment Doffing Checklist Example

Step #	Task	Criteria	Completed
1‡	Trained Observer	 Engage the trained observer outside patient room with the checklist Determine contact time requirement for disinfectant wipe per product label 	❑ Yes ❑ No
2†	Inspect PPE	 In patient room;[†] Inspect PPE for soiling or breaches If PPE is visibly contaminated, disinfect by using an EPA-registered disinfectant wipe (allow contact time per product label) 	❑ Yes ❑ No
3†	Perform hand hygiene	• Perform hand hygiene by using an EPA-registered disinfectant wipe (allow contact time per product label) or with alcohol-based hand sanitizer	❑ Yes ❑ No
4 †	Doff apron (if wearing)	 Use care not to spread contamination if apron is soiled Remove (e.g., by breaking or untying neck strap and releasing waist ties) Touch inside of apron only to remove by folding and rolling into a bundle and discard into an infectious waste container Re-inspect PPE that was under apron and disinfect with wipes as needed 	❑ Yes ❑ No
5†	Doff outer gloves	 Disinfect outer-gloved hands with either an EPA-registered disinfectant wipe (allow contact time per product label) or alcohol-based hand sanitizer Using gloved hand, grasp the palm area of the other gloved hand and peel off first glove Hold the removed glove in the opposite, gloved hand Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining outer glove over the first glove Discard both outer gloves in the infectious waste container 	❑ Yes ❑ No
6†	Disinfect inner gloves	 Inspect the inner gloves' outer surfaces for visible contamination, cuts, or tears If no visible contamination is identified on the inner gloves Disinfect the inner-gloved hands with either an EPA-registered disinfectant wipe (allow contact time per product label) or alcohol-based hand sanitizer If an inner glove is visibly soiled Disinfect the glove with an EPA-registered disinfectant wipe (allow contact time per product label) Remove the inner gloves Using gloved hand, grasp the palm area of the other gloved hand and peel off first glove 	

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Special Respiratory

Special Considerations

Exercises

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Step #	Task	Criteria	Completed
6† (cont.)		 Hold the removed glove in the opposite, gloved hand Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining outer glove over the first glove Discard both inner gloves in the infectious waste container Perform hand hygiene with alcohol-based hand sanitizer on bare hands Don a new pair of inner gloves If a cut or tear is detected on an inner glove, immediately initiate occupational exposure protocol 	❑ Yes ❑ No
7 †	Doff face shield	 Face shield is considered contaminated Remove by tilting the head slightly forward, grasping the rear strap and pulling it gently over the head and allowing the face shield to fall forward Discard in the infectious waste container 	□ Yes □ No
8†	Perform hand hygiene	 Perform hand hygiene and disinfect inner-gloved hands with alcohol-based hand sanitizer 	❑ Yes ❑ No
9†	Doff surgical hood	 Lean forward to avoid allowing the front of the hood from brushing over exposed mucous membranes (e.g., eyes) Remove hood by gently pulling the hood from the rear of the head in a motion that is down and away from the neck and shoulders Discard in the infectious waste container 	❑ Yes ❑ No
10 †	Perform hand hygiene	Disinfect inner-gloved hands with alcohol-based hand sanitizer	❑ Yes ❑ No
11†	Doff gown	 Front and sleeves are considered contaminated Pull the gown away from the body until the ties break Remove gown by pulling it away from the neck and shoulders, touching the inside only As the gown is rolled away from the body it is turned inside out, folded or rolled into a bundle and discarded in the infectious waste container 	❑ Yes ❑ No
12 [†]	Perform hand hygiene	Disinfect inner-gloved hands with alcohol-based hand sanitizer	□ Yes □ No
13 †	Doff shoe covers	• Sitting on a clean and stable surface at the border of the patient's room and the designated decontamination area, remove shoe covers one at a time	□ Yes □ No

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Special Respiratory

Special Considerations

Exercises

References and Resources

Step #	Task	Criteria	Completed
14 [‡]	Perform hand hygiene	Disinfect inner-gloved hands with alcohol-based hand sanitizer	❑ Yes ❑ No
15‡	Doff inner gloves	 Using gloved hand, grasp the palm area of the other gloved hand and peel off first glove Hold the removed glove in the opposite, gloved hand Slide fingers of the ungloved hand under the remaining glove at the wrist and peel off the remaining outer glove over the first glove Discard both inner gloves in the infectious waste container 	❑ Yes ❑ No
16 ‡	Perform hand hygiene	 Perform hand hygiene and disinfect inner-gloved hands with alcohol-based hand sanitizer 	□ Yes □ No
17 ‡	Don new pair of gloves	 Clean bare hands with alcohol-based hand sanitizer Cover cleaned hands with clean gloves 	□ Yes □ No
18‡	Remove N95 respirator	Remove N95 respirator from the back to front and discard in the infectious waste container	❑ Yes ❑ No
19‡	Perform hand hygiene and doff final gloves	 Disinfect gloved hands with alcohol-based hand sanitizer Remove gloves using same procedure as first two pairs 	□ Yes □ No
20 ‡	Perform hand hygiene	 Clean bare hands with alcohol-based hand sanitizer Ensure hands are completely dry before exiting the area 	□ Yes □ No
21‡	Inspect	 Perform a final inspection for contamination of the surgical scrubs or disposable garments If contamination is identified, carefully remove the garments and shower immediately 	□ Yes □ No
22 §	Follow up	Perform staff rehab, medical monitoring, documentation, and behavioral wellness check as indicated	□ Yes □ No

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Acknowledgments

This planning guide is a product of NYC Health + Hospitals with initial draft materials developed by **Syra Madad**, DHSc, MSc, MCP, Senior Director, System-wide Special Pathogens Program, NYC Health + Hospitals and **Sean Studer**, MD, MSc, Chief of Medicine, NYC Health + Hospitals / Kings County; additional contributions and editing by **Nicholas V. Cagliuso, Sr.**, PhD, MPH, Senior Assistant Vice President for Emergency Management, NYC Health + Hospitals. NYC Health + Hospitals gratefully acknowledges the contribution of materials from the CDC, Minnesota Department of Health, NETEC, NIOSH, and OSHA.

Additionally, NYC Health + Hospitals thanks the following subject matter experts for their review of this document:

Amesh Adalja, MD, FIDSA, FACP, FACEP, Senior Scholar, Johns Hopkins Center for Health Security; Eric Alberts, CEM, FPEM, FPEM-HC, CHPP, CHEP, SEM, Corporate Manager, Emergency Preparedness, Orlando Health, Inc. (Hospital System); Gerrit Bakker, Senior Director, Public Health Preparedness, Association of State and Territorial Health Officials; Mary Ellen Bennett, MPH, RN, CIC, Nurse Specialist, Infection Control Assessment and Response, Minnesota Department of Health; Eileen Blake, MPH, Associate Director, Yale New Haven Health System Center for Healthcare Solutions/Center for Emergency Preparedness and Response; Ami Boonjaluksa, RN, Disaster Program Manager, Los Angeles County EMS Agency; Julie Bulson, DNP, MPA, RN, NE-BC, Director, Emergency Preparedness, Spectrum Health; Keri Cain, Hospital Preparedness Program State Coordinator, Texas Department of State Health Services; Willie Carley, Veteran Integrated Service Network 3, Network Emergency Management Program Coordinator, Department of Veterans Affairs; Craig DeAtley, PA-C, Director, Institute for Public Health Emergency Readiness, MedStar Washington Hospital Center; Lorraine Fearon, APRN, Nurse Practitioner, Loyola Employee and Student Health; Emily Gould, Rural Preparedness Coordinator, Nevada Public Health Preparedness Program; Tammy Hale, MSN, RN, CIC, Nurse Specialist, Infection Control Assessment and Response, Minnesota Department of Health; Mark Jarrett, MD, MBA, MS, SVP & Chief Quality Officer/Associate Chief Medical Officer, Northwell Health and Professor of Medicine, Zucker School of Medicine at Hofstra/Northwell; Christopher Lake, PhD, Executive Director, Community Resilience, Nevada Hospital Association; Brad Learn, CHEP, Emergency Preparedness Coordinator, Kentucky Hospital Association; Deborah Levy, PhD, MPH, Professor and Chair, Department of Epidemiology, College of Public Health, University of Nebraska Medical Center; Nicolette Louissaint, PhD, Executive Director, Healthcare Ready; Joseph Masci, MD, Chairman, Global Health Institute, Elmhurst Hospital Center and Professor of Medicine and Preventive Medicine, Icahn School of Medicine at Mount Sinai; Lyle Moore, Jr., MPH, Director, Hospital Emergency Preparedness, Colorado Hospital Association; Kenneth Onye, MPH, Special Pathogen Consultant, Bureau of EMS, Trauma, and Preparedness, Michigan Department of Health and Human Services; James Paturas, CEM, CBCP, EMTP, FACCP, Director, Yale New Haven Health System Center for Emergency Preparedness and Disaster Response; Amber Pitts, Hospital Preparedness Program Section Manager, Division of Emergency Preparedness and Response, Michigan Department of Health and Human Services; Terri Postma, MD, Medical Officer, Performance-Based Payment Policy, Centers for Medicare and Medicaid Services; Amy Priddy, DNP, RN, CIC, Senior Manager, Infection Prevention and Control Service, Park Nicollet Health Services; Mary Russell, EdD MSN, RN Emergency Services, Boca Raton Regional Hospital; Shelly Schwedhelm, MSN, RN, NEA-BC, Executive Director, Emergency Management and Biopreparedness, Nebraska Medicine; Barbara A. Smith, RN. BSN. MPA. CIC. FAPIC. Infection Preventionist. Mount Sinai St. Luke's/Mount Sinai West: Sharon Vanairsdale, DNP, APRN, ACNS-BC, NP-C, CEN, FAEN, FAAN, Program Director for Serious Communicable Diseases, Emory University Hospital: Mark Van Dyke, MEd, Manager, Emergency Preparedness, Spectrum Health; Boyd Wilson, MS, CIC, FAPIC, Director of Infection Prevention and Control, Regions Hospital; and Representatives from the NETEC, Emergency Nurses Association and the Johns Hopkins Biocontainment Unit.



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