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High Consequence Pathogens: Preparedness and Response Plan

I. Description

This policy describes the management of patients with a high consequence pathogen.

II. Rationale

Several pathogenic microbes that are transmitted principally by the droplet or airborne routes may lead to severe respiratory disease including highly pathogenic avian influenza (e.g., H5N1, H7N9), SARS-CoV, MERS-CoV, SARS-CoV2 (COVID-19) and pulmonary plague (etiologic agent, *Yersinia pestis*). Viral hemorrhagic fevers (e.g., Ebola, Lassa, Marburg) are also considered highly pathogenic and require additional planning and careful management. Planning and preparedness are critical to the successful management of an epidemic involving high consequence pathogens with real or perceived concern for high transmissibility or pathogenicity that would necessitate enhanced PPE usage. Perceived concern would be in the setting of a novel pathogen. Rapid implementation and strict adherence to this policy can reduce disease transmission within UNC Medical Center (UNCMC).

III. Policy

A. Definition of a High Consequence Pathogens

For the purpose of this plan, high consequence pathogens will include pandemic influenza strains including highly pathogenic avian influenza (e.g., H5N1, H7N9), SARS-CoV, MERS-CoV, COVID-19, *Y. pestis*, agents of viral hemorrhagic fevers (Ebola, Marburg, Lassa, Congo-Crimean fever), certain Hanta viruses, certain pox viruses (e.g., smallpox, monkey pox, vaccinia) and any other highly pathogenic emerging infectious disease as deemed appropriate by one of the entities below.

The Director, Associate Director, or Medical Director of Infection Prevention; the Centers for Disease Control and Prevention; or the North Carolina State Epidemiologist may designate other agents or specific pathogens requiring similar management. In cases of specific pathogens, after reviewing recommendations from the Centers for Disease Control and Prevention (CDC) and World Health Organization (WHO), Infection Prevention may amend this plan.

B. Notification and Activation

1. The Hospital Incident Management Team (IMT) and Emergency Operations Plan Incident Management Annex will be activated when there are one or more cases in the community of a high consequence pathogen presenting to UNC Medical Center, UNC Outpatient Care Services, or to other hospitals in the state.
2. In all cases of suspected or known high consequence pathogen visits or admissions, the Infection Preventionist and receiving UNC Medical Center location should be notified prior to the patient being triaged to a UNC Medical Center facility per the notification pathway (see attachments). It is the responsibility of the attending physician caring for the patient or his/her designee to notify Infection Prevention
3. All UNCMC health care personnel (HCP) may be reached via hospital operator, 984-974-1000 or through the [myUNC Health Directory](#) online paging system.

C. General Surveillance and Triage

The following strategies will be used based on CDC and or NC State Health Department issued travel advisories, the current scope of the situation, the pathogen at-hand, and at the discretion of Infection Prevention:

1. Tier 1 Strategies:
 - a. A mask covering the nose and mouth should be placed on a patient exhibiting respiratory symptoms at the ED or clinic intake/registration desk. Posted visual alerts will recommend "respiratory hygiene precautions." (Attachment 2- Respiratory Hygiene Poster)
 - b. Clinicians, intake and triage staff will be regularly updated via email, updates posted on the UNCMC Intranet, memorandas, and meetings on the status of the high consequence pathogen locally, nationally, and internationally as necessary.
 - c. Intake and triage staff will be trained or provided instructional tools on how to assess risks for high consequence pathogens and use any applicable tools as directed by Infection Prevention (e.g. thermometers, respiratory signs/symptoms checklists, etc.) to screen patients.
2. Tier 2 Strategies:

- a. Signs (in appropriate languages including English and Spanish) will be placed outside the Emergency Departments (ED), clinic, and other hospital entrances requesting that persons with appropriate symptoms and epidemiologic exposure identify themselves to the triage nurse or greeter/ clinic intake staff.
- b. Patients with suspect or probable high consequence pathogen requiring medical evaluation should ideally be seen in the designated Airborne Infection Isolation Room (AIIR) in the Emergency Department (ED) or another appropriate designated location for patients with suspected high consequence pathogen (i.e., with adjacent private bathroom).

3. Tier 3 Strategies:

- a. If patient capacity exceeds ED AIIR, patients with suspect or probable high consequence pathogen requiring medical evaluation should ideally be seen in either an alternate location determined by Infection Prevention in conjunction with administration, or put engineering controls in place in the ED to prevent transmission.
 - i. The patient will be required to wear a surgical mask covering their mouth and nose upon arrival and will be given the mask by intake staff.
- b. Patients with a suspect viral hemorrhagic fever should be directed to a designated location for care of a hemorrhagic fever patient.

4. Tier 4 Strategies:

- a. Screening of persons (patients and visitors) entering the facility will escalate from passive (e.g., signs at the entrances) to active (e.g., direct questioning, respiratory symptoms, temperature monitoring). The electronic medical record may be used to capture the questions and responses related to screening patients for high consequence pathogens. Screening will need to be coordinated with access controls, a triage station outside the facility to screen patients before they enter the facility, and/or telephone screening of patients with appointments and/or screening of transfer requests. Separate screening entrances will be established for patients, staff, and visitors (if warranted, visitors may be excluded from entering the healthcare facility).
- b. A "Respiratory Diagnostic/Evaluation Center" should be used to separate patients with suspected highly communicable respiratory disease from other patients seeking care at UNCMC.

D. High Consequence Respiratory Pathogens

1. Triage and Management of High Consequence Respiratory Pathogens: To the extent

possible (and with help of the local health departments), care for high consequence respiratory pathogen cases should remain with their primary physician or local hospital with consultation from the local and/or North Carolina State Health Department.

2. If a patient contacts a UNC physician via phone, the physician should ascertain the level of illness and then discuss triage with the Medical Center ED attending physician directly for severe disease or the Infectious Disease Adult/Pediatric (as appropriate) Consult Attending (mild/moderate disease). The patient will be triaged to the appropriate site for care and the plan will be clearly communicated via a direct phone call to the receiving attending physician. Infection Prevention should be notified via the 24/7 on-call pager by the ED attending or ID attending of incoming patients for new outbreaks of disease or new cases of disease not yet seen at UNCMC. Infection Prevention will notify the Microbiology Lab director before any lab specimens are sent to the lab. Patients with mild/moderate disease may be triaged to their home and if necessary could be seen for follow up for evaluation in the Medical Center ED. Direct admissions must be coordinated with the System Patient Logistics Center (SPLC), Infection Prevention, and the Incident Management Team.
3. If a patient has already presented at a local UNCMC facility, the local UNCMC physician should ascertain the level of illness and then discuss triage with the ED attending physician (severe disease) or the Infectious Disease Adult/Pediatric (as appropriate) Consult Attending (mild/moderate disease). Infection Prevention should be notified via the 24/7 on-call pager. Patients with mild/moderate disease may be triaged to their home and if necessary could be seen for follow up for evaluation in the Medical Center ED. Direct admission must be coordinated with the Patient Logistics Center (SPLC), Infection Prevention, and the Incident Management Team.
4. If a patient at a non-UNCMC facility is under consideration for transfer to a UNCMC facility, either the Medical Center ED Attending or the Infectious Disease Consult Attending (adult or pediatric as appropriate) and Infection Prevention should be involved in the triage decision. Infection Prevention must be notified via the 24/7 on-call pager by the ED attending or ID attending. If possible, the patient should be managed at the outside facility or with consultation from the local health department. The ED and Infectious Disease Consult attending along with Infection Prevention should always be notified via direct telephone communications prior to transfer. Infection Prevention will contact Emergency Management if the patient is coming to a UNCMC facility.

Patient Source	Responsible Physician for Consultation	Location for Patient Evaluation
Hospital healthcare personnel*	Medical Director, OHS	Medical Center ED
University HCP (including HCPs from <i>Y. pestis</i> ,	Medical Director,	Medical Center ED

Patient Source	Responsible Physician for Consultation	Location for Patient Evaluation
SARS, etc. research lab)*	University UE-OHS	
UNC Health (local facility): Minor to moderate disease (symptoms plus epidemiologic exposure)	ID consult MD (adult or pediatrics)	Medical Center ED
UNC Health (local facility): Severe disease (i.e., patients likely to require admission based on symptoms, physical examination, and labs; if screened elsewhere or by history on the phone) – symptoms plus epidemiologic exposure	ED physician + ID consult	Medical Center ED
Non-UNC Health facility: Minor to moderate disease (symptoms plus epidemiologic exposure)	Local physician	Physician office; health department
Non-UNC Health facility: Severe disease (i.e. patients likely to require admission based on symptoms, exam, and labs; if screened elsewhere or by history on phone) – symptoms plus epidemiologic exposure	Local physician, ED physician + ID consult	Local ED (prior notification) – local health department should be notified.

*Work related illnesses and injuries only

E. Hospital Services for Management of a Patient with a High Consequence Respiratory Pathogen

1. Nursing House Supervisor will assist in evaluating nursing coverage options for the ED and may assist in coordinating couriers for lab specimens.
2. Portable x-rays will be obtained in the ED by Radiology or the MICU by staff trained in special airborne/contact precautions.
3. Patient specimen management will be handled by the McLendon Laboratories per laboratory policies . The tube system should not be used to transport specimens, unless deemed safe by the lab director.
4. Infection Preventionists and trained PPE monitors will be available to assure compliance with Isolation Precautions including proper use of personal protective equipment (PPE).
5. Infection Prevention will be responsible for communication with county/state/CDC.

F. Infection Control for High Consequence

Respiratory Pathogens

Transmission risk of high consequence respiratory pathogens in healthcare facilities depends on the extent of disease activity in the community but also disease activity in the facility. The decision for escalating infection control measures will be based on disease activity and transmission. For infection control guidance on potential agents of bioterrorism, please refer to the Infection Prevention policy: [Infection Control Response to the Intentional Use of a Biothreat Agent](#).

1. Isolation Precautions

- a. All patients with suspected high consequence respiratory pathogens seen in the Medical Center ED or a UNCMC clinic should immediately be placed in a private room meeting airborne isolation requirements (i.e., ≥ 6 air changes per hour, air exhausted directly to the outside, negative pressure) if available. If an AIIR or negative pressure room is not available, the patient should be placed in a private room with the door closed. A surgical mask covering the nose and mouth should be placed on the patient until placement in an AIIR (Airborne Infection Isolation Room). These patients cannot be placed in the general waiting room.
- b. Staff should perform and document a tissue test to ensure negative pressure before placing patient in the room. The tissue test must be performed and documented daily in the EMR by nursing thereafter as long as the patient remains in the room.
- c. All patients with suspected high consequence respiratory pathogen should be placed on Special Airborne/Contact Precautions in an AIIR room (Attachment 5 - Special Airborne/Contact Isolation Sign), unless other engineering controls have been put in place (e.g., HEPA unit placed in the room).
- d. Patients on Special Airborne/Contact Precautions should be placed in an AIIR that has a private bathroom. If not available, a bedside commode should be placed in the room for patient use.
- e. PPE required for entering Special Airborne/Contact Precautions room
 - i. N95 or Powered Air Purifying Respirator (PAPR)
 - ii. Gloves (extend to cover wrist of isolation gown)
 - iii. Isolation Gown
 - iv. Protective eyewear
- f. Protocols for donning and doffing of PPE for Special Airborne Contact Precautions can be found on the [Highly Communicable Disease Resources](#)

page on the [Infection Prevention](#) intranet site.

- g. A log will be maintained of all persons entering the room of patients with a suspect or probable high consequence respiratory pathogen (Attachment 7 - Entry Log for Individuals Entering the Room of a Patient with Suspected or Confirmed High Consequence Pathogen). This log will be the responsibility of the nurses on the unit where the patient is admitted. Logs will be collected and maintained by Infection Prevention. Length of time logs are kept will be determined by Infection Prevention based on the pathogen and electronic reporting capabilities.
- h. Healthcare Personnel (HCP) entering the room will be limited to essential personnel only. No trainees (i.e., medical students, nursing student, or residents) will be allowed to enter the room.
- i. Aerosol-generating procedures (e.g., sputum induction, airway suctioning, aerosol medication therapy, bronchoscopy, and intubation): Special Airborne/Contact Precautions (including eye protection) must be used for performing all procedures that generate aerosols.
 - i. Limit the use of aerosol-generating procedures on high consequence respiratory pathogen patients to those that are deemed medically necessary.
 - ii. HCP performing aerosol-generating procedure will wear an N95 or PAPR and eye protection.
 - iii. Use clinically appropriate sedation during intubation and bronchoscopy to minimize resistance and coughing during the procedure.
 - iv. Ideally, use bacterial/viral filters on exhalation valves of mechanical ventilators.

2. Transport

- a. Whenever possible, the patients should have procedures/tests done in their own rooms, rather than transporting to other areas.
- b. Minimize intra-hospital transport of patients with suspected high consequence respiratory pathogen. When a patient is being transported for essential diagnostic tests or from clinic/ED to hospital room, the patient should wear a surgical mask. Notify receiving area prior to patient transport. When transporting patients, identify a path segregated from the main traffic routes as much as possible and ideally use the dedicated clinical staff for the transport. Ventilators used for patient transport must use bacterial/viral filters on the exhalation valve.

- c. Personnel performing transport of patient should wear a PAPR or N95 respirator, clean gloves, clean gown, and eye protection.

3. Laboratory

- a. Laboratory specimens for patients with high consequence pathogens will be hand carried to the laboratory (i.e., use of the tube system is prohibited) in a container marked biohazard (i.e., biohazard specimen bag). Prior notification of the Medical Directory of the Microbiology Lab must be done before any specimens are sent to the Lab.
- b. Patient specimen management will be handled by the McLendon Laboratories per laboratory policies.

4. Visitors

- a. All visitors (except those identified in ii. below) will be excluded from visiting persons with suspect or probable high consequence respiratory pathogen.
 - i. If necessary, an isolation/quarantine order will be sought from the State or Local Health Department to enforce this policy.
 - ii. Visitors will be restricted to the guardians of minor children and no more than 2 designated adult significant others (e.g., spouse, adult brother/sister) may visit provided that they do not have fever or respiratory symptoms, and are able to wear appropriate PPE. An exception to the visitation rule can be made by the NC State Epidemiologist or the Medical Director Infection Prevention.
 - iii. Visitors must undergo daily health screening by a trained professional prior to visitation. Screening may be done by clinical staff or door screeners.
 - iv. Visitors must receive infection prevention training and comply with infection prevention measures (e.g., compliance with PPE). Training will be done by unit or clinic staff.
 - v. Symptomatic visitors exposed to high consequence respiratory pathogen patients will be excluded from visitation.
 - vi. Decisions on patient visitation will be made by hospital leadership with input by Infection Prevention.

- 5. Deaths/Human Remains: Instruct staff to wear appropriate PPE, designated by the type of isolation for the disease. (Attachment 3 - PPE Removal Process Poster). Follow NC Health Department and CDC recommendations for transport and burial.

G. Patient Placement, Isolation, and Cohorting for

High Consequence Respiratory Pathogens

1. Patients with suspect or probable high consequence respiratory pathogens should be admitted only if medically indicated (i.e., require hospital care for respiratory distress).
2. Patients requiring hospitalization should be admitted to a room meeting airborne infection isolation criteria. A complete, up-to-date [listing of AIIRS](#) can be obtained from the [Infection Prevention](#) page on UNC Medical Center Intranet.
 - a. Adult patients requiring hospital admission will be housed in the MICU. Pediatric patients requiring ICU care will be housed in the PICU.
 - b. Ideally, a PPE monitor will be placed outside the patient's door to assist with proper donning and doffing of PPE and maintain the entry log (Attachment 7 - Entry Log for Individuals Entering the Room of a Patient with Suspected or Confirmed High Consequence Pathogen).
3. A lack of AIIRs and/or a need to concentrate infection prevention efforts and resources may lead to a strategy that includes the following:
 - a. Cohorting patients in individual rooms on the same floor, rather than placing them in AIIRs throughout the hospital; or
 - b. Converting private AIIRs to double rooms to accommodate more patients requiring airborne isolation. This strategy would only be implemented following approval from the Incident Commander, Federal, and State authorities, and to the extent that staff could manage the number of patients on the unit.
 - c. A lack of hospital beds may lead to a strategy of utilizing non-licensed inpatient beds for patient management (e.g., PACU, observation beds) with direction from the Incident Management Team, Federal and State authorities, and to the extent that staff can manage the number of hospitalized patients.
 - d. In the context of significant high consequence respiratory pathogen transmission, high patient volume or frequent unprotected exposures, patients might be divided into the following cohorts for room placement: patients who are exposed and asymptomatic; patients who are exposed and symptomatic but do not meet the high consequence respiratory pathogen case definition; patients who meet the high consequence respiratory pathogen case definition; non-exposed patients.

H. Engineering and Environmental Controls for High Consequence Respiratory Pathogens

1. Plant Engineering will be responsible for ensuring that the AIIRs are functioning properly. Nursing staff must perform a tissue test and document results prior to placing a patient in an AIIR and at least on a daily basis thereafter.
2. If all AIIRs are utilized, Plant Engineering in conjunction with Infection Prevention may investigate whether non-AIIR rooms can be modified to achieve appropriate airflow direction and/or air exchanges for care of high consequence respiratory pathogen patients.
3. If the patient must temporarily leave the AIIR, the door must be kept closed for a minimum of 30 minutes prior to anyone entering without wearing a respirator. Likewise, the door should remain closed for a minimum of 30 minutes with the isolation sign displayed when a patient is discharged from an AIIR Airborne Precautions room. The 30 minute time period will allow the room ventilation system to remove any droplets/droplet nuclei.
4. Environmental disinfection polices should be followed:
 - a. Following discharge, hospital rooms housing high consequence respiratory pathogen patients should receive terminal cleaning and disinfection using UNCMC Infection Prevention policy: [Environmental Services](#). Environmental Service personnel must wear gloves, gowns, a PAPR or a N95 respirator, and eye protection (i.e., goggles or face shield) until cleaning/disinfection is complete.
 - b. In clinics and procedure areas (e.g., Radiology), all equipment (e.g., stretchers) having direct or close contact with patients with suspected high consequence respiratory pathogens must be disinfected immediately after use with an EPA-registered disinfectant (e.g., SaniCloth, MetriGuard, or 1:10 dilution of bleach and water).
 - c. These environmental guidelines may require alteration depending on the pathogen of concern and will be revised at the discretion of the Infection Prevention.

I. Exposure Reporting and Evaluation for High Consequence Respiratory Pathogens

1. Occupational exposure consists of:
 - a. providing care or being in the room with a high consequence respiratory pathogen patient without wearing proper PPE or

- b. entering a vacated high consequence respiratory pathogen patient's room without wearing a respirator when the patient has not been out of the room for a minimum of 30 minutes
 - c. disease-dependent exposure definitions will be maintained by Infection Prevention to reflect the most up to date information on disease transmission. The definitions will be based on CDC or WHO definitions as determined by Infection Prevention department.
 2. All occupational exposures must be reported to the appropriate occupational health service provider. Infection Prevention and Occupational Health Service will work in conjunction with one another to evaluate and determine the most appropriate method for HCP exposure notification and management to high consequence pathogens.
 3. In the setting of human-to-human transmission in the local geographic area, any HCP with respiratory symptoms should notify his/her occupational health provider via phone to assess his/her need for evaluation.
 4. Management of asymptomatic healthcare personnel with unprotected exposure to high consequence respiratory pathogens:
 - a. Persons who have been exposed to a high consequence respiratory pathogen should notify their occupational health service provider. They should also be vigilant for fever or respiratory symptoms following exposure for a period of time that varies depending on the possible respiratory pathogen. Those who develop fever or respiratory symptoms should not go to work. Decisions about limiting interactions of persons who develop fever or respiratory symptoms outside the home and restrictions on attending school, out-of-home child-care, church, or other public areas will be determined by state or local public health departments.
 - b. Exposed, unprotected healthcare personnel, who are asymptomatic, depending upon the disease, may be furloughed at the discretion of the Medical Director of the applicable occupational health service, in consultation with the Medical Director of Infection Prevention during the incubation period of the disease.
 - c. Exposed, unprotected healthcare personnel who are asymptomatic and who are allowed to work must be evaluated prior to work each day by the appropriate occupational health service.
 - i. Occupational Health Service: UNC Health personnel
 - ii. University HCP Occupational Health Clinic: UNC physicians and other staff employed by the university.
 - d. Such examinations will be performed for a period of time that varies

depending on the possible respiratory pathogen (e.g., influenza = 5 days; SARS = 10 days) following the last unprotected exposure. In addition, exposed asymptomatic healthcare personnel should monitor themselves for signs and symptoms of the pathogen to which they were exposed.

- e. Afebrile healthcare personnel in some or all units with respiratory symptoms may be required to undergo laboratory testing for respiratory viruses (e.g.: influenza A, influenza B, RSV, rhinovirus) depending on the nature of the high consequence pathogen and time of year. Depending on the high consequence pathogen, healthcare personnel who test negative may be allowed to continue to work, while wearing a mask and practicing good hand hygiene.
5. Management of symptomatic healthcare personnel exposed to a high consequence respiratory pathogen
 - a. Exposed healthcare personnel who develop fever and/or respiratory tract symptoms should not report to work. Rather they should immediately report by phone the development of fever and/or respiratory tract symptoms to the appropriate healthcare provider (e.g., Medical Director of Occupational Health, Nurse Practitioner of Occupational Health). The healthcare provider will evaluate symptomatic persons as medically necessary by telephone.
 - b. If symptoms do not progress to meet the suspect high consequence respiratory pathogen definition within the time period to be determined by the specific infectious agent, the person may be allowed to return to work (depending on the pathogen) at the discretion of the Medical Director of Occupational Health in conjunction with Infection Prevention. Decisions about when the person can return to school, out-of-home child-care, church or other public areas will be determined by state or local public health departments.
 6. Management of asymptomatic healthcare personnel with a high-risk exposure to a high consequence respiratory pathogen.

To manage an unprotected high-risk exposure of a HCP (i.e., HCP in the same room as probable high consequence respiratory pathogen patient during a high-risk aerosol-generating procedure and infection control precautions are either absent or breached) with no symptoms of high consequence respiratory pathogen, the HCP:

 - a. Should be excluded from duty for a time period that depends on the specific respiratory pathogen (e.g., influenza = 5 days; SARS = 10 days) following the date of the last high-risk exposure
 - b. Need not limit activities outside the health care setting but should be vigilant for development of fever and/or respiratory symptoms.
 - c. Will document active surveillance for the development of fever or respiratory

symptoms, and the frequency of recording health status measures will be determined by occupational health service providers.

7. University HCPs who are exposed to a high consequence respiratory pathogen (e.g., SARS, avian influenza) in a University research lab should contact the University Biological Safety Officer (office phone: 919-962-5722; cell phone: 919-869-5874, Biosafety on-call pager 919-216-3963 for information on Standard Operating Protocols for post exposure follow-up to select agents.

J. Pre- and Post-Exposure Prophylaxis for Respiratory Diseases

1. Pre-exposure antiviral prophylaxis may be made available to selected healthcare personnel by the appropriate occupational health service. Generally, pre-exposure prophylaxis for pandemic influenza would be taken for the duration of influenza activity. Guidelines published by CDC, the NC State Health Department and professional organizations will be used by Infection Prevention and the appropriate occupational health service in determining which groups are to be offered prophylaxis.
2. Post-exposure antiviral prophylaxis may be made available to selected healthcare personnel by the appropriate occupational health services. Generally, post-exposure prophylaxis for pandemic influenza would be taken for 7-10 days. Guidelines published by CDC, the NC State Health Department, and professional organizations will be used by Infection Prevention and the appropriate occupational health service in determining which groups are to be offered prophylaxis.
3. Vaccine may be made available for healthcare personnel as recommended by the Advisory Committee on Immunization Practices, state and federal guidelines. Prioritization may occur based on state and local regulations. All vaccine will be provided to HCP with informed consent and at the healthcare system's expense.
4. In the event we are unable to obtain antivirals from usual vendors, a request will be made to local authorities for antivirals from state or federal reserves. Prioritization may occur based on local needs, state, and federal regulations.

K. Staffing Needs and Personnel Policies for High Consequence Respiratory Pathogens

1. Following appropriate infection prevention and personal protection equipment training and fit-testing, all healthcare personnel are expected to conduct their normal level of job activities in order to provide care for patients with known or suspected high consequence respiratory pathogens.
2. During a high consequence respiratory pathogen outbreak of any size, staffing shortages may occur. Staffing shortages are likely to escalate as an outbreak

progresses. As the number of patients increase and/or staff become ill or are quarantined, a determination will need to be made as to how staffing needs will be met. Use of alternative staffing resources (e.g., retired healthcare personnel, volunteers, contract personnel, students) may be needed but will require training and support (including malpractice insurance, occupational health services) during the outbreak response. Decisions regarding staffing will be made and direction provided by the Incident Management Team.

3. Quarantine authority belongs to the health department. If quarantine is used as an exposure management tool, some healthcare personnel may be placed on 'home/work restrictions' to ensure sufficient staffing levels. Healthcare personnel on home/work restrictions should travel only between home and the healthcare facility for the duration of the restriction. Should quarantine be necessary, the HCP will be instructed by the health department regarding details on the restriction.
4. Healthcare personnel have access to mental health professionals to help them cope with the emotional strain of managing a high consequence respiratory pathogen outbreak (e.g., Employee Assistance Program, Critical Incident Stress Management, Psychiatry, and IESP)

L. Viral Hemorrhagic Fevers

- Hemorrhagic Fevers
 - a. If a patient contacts a UNC physician via phone or presents to a local UNCMC facility, the physician should ascertain the level of illness and call Infection Prevention to review if the patient meets case definition. Infection Prevention will follow internal protocol for notification via the notification pathway (see attachments). The patient will be triaged to the Viral Hemorrhagic Fever designated care location in coordination with Infection Prevention.
 - b. If a patient at a non-UNCMC facility is under consideration for transfer to a UNCMC facility, Infection Prevention, the Director of Disaster Preparedness, and Infectious Disease on-call must be involved in the triage decision. If possible the patient should be managed at the outside facility or with consultation from the local health department. If transfer is approved by the COO or his/her designee, the patient should be triaged to the Viral Hemorrhagic Fever designated care location in coordination with Infection Prevention.

Patient Source	Responsible Physician for Consultation	Location for Patient Evaluation
Home healthcare personnel	Medical Director OHS and HCP	Viral hemorrhagic fever care location
UNC Health (local facility): Severe disease	Infectious Disease	Viral hemorrhagic

Patient Source	Responsible Physician for Consultation	Location for Patient Evaluation
(symptoms plus epidemiologic exposure)		fever care location
Non-UNC Health facility: Severe disease (symptoms plus epidemiologic exposure)	Infectious Disease	Viral hemorrhagic fever care location

M. Hospital Services for Management of Patients with Viral Hemorrhagic Fever

- Viral Hemorrhagic Fever
 - a. A dedicated group of HCP will care for a patient with viral hemorrhagic fever.
 - b. A dedicated group of healthcare personnel will respond to the care of a patient with known or suspected viral hemorrhagic fever. HCP will include physicians, nurses, laboratory personnel, respiratory therapists, and radiology (list is not inclusive or exclusive of personnel need to respond). Other disciplines will respond as necessary for care of the patient.
 - c. All diagnostic testing and specimen management will be handled within the Viral Hemorrhagic Fever designated care location.
 - d. Infection Preventionists and trained PPE monitors will be available to assure compliance with isolation precautions including proper use of personal protective equipment (PPE).
 - e. Infection Prevention will be responsible for communication with county/state/CDC.

N. Infection Controls for Highly Communicable Viral Hemorrhagic Fever

1. Isolation Precautions

- a. All patients with suspected viral hemorrhagic fever (VHF) will be placed in a private room in a controlled location with a private bathroom. This room will meet airborne isolation requirements (i.e., ≥ 6 air changes per hour, air exhausted directly to the outside, negative pressure) if possible. A surgical mask covering the nose and mouth should be placed on the patient until placement in a room in a designated Viral Hemorrhagic Fever Care location. Patient will not be placed in the general waiting area.
- b. If patient is placed in an AIIR, staff should perform and document a tissue test to ensure negative pressure before placing patient in the room. The tissue test must be performed and documented daily by nursing in the EMR while the patient remains in the room.

- c. Healthcare personnel caring for patients with suspected viral hemorrhagic fever must be trained and follow strict donning and doffing protocol (Attachment 6 - Special Precautions Isolation Sign for appropriate isolation sign).
- d. Healthcare Personnel (HCP) that are excluded from caring for patients in the Hemorrhagic Fever Care Location include HCP that are unable to wear appropriate PPE, immunocompromised, pregnant, have open/non-intact skin, have not had enhanced PPE training.
- e. Healthcare Personnel entering the room will be limited to essential personnel only. No trainees (i.e., residents, students) or volunteers will be allowed to enter the room.
- f. Key points related to donning and doffing PPE:
 - i. Trained PPE monitor is present
 - ii. HCP uses hospital supplied scrubs (no street clothes or personal scrubs allowed)
 - iii. All jewelry is removed-including wedding bands, necklaces and watches; all personal items are left in a secured area-including
 - iv. Cell phones, pagers, and Voceras are not to be taken into the room and must be stored away
 - v. Long hair is pulled up and away from the face - use a bouffant cap if necessary to secure hair
 - vi. Personal footwear has been removed and slipper socks donned.
- g. A log will be maintained of all persons entering the room of patients with a suspect or probable high consequence pathogen (Attachment 7 - Entry Log for Individuals Entering the Room of a Patient with Suspected or Confirmed High Consequence Pathogen). This log will be the responsibility of the PPE monitor on the unit where the patient is housed. Logs will be collected by Infection Prevention.

2. Transport

- Intra-hospital transport of a patient with known or suspected VHF will be done in an Isopod (located in the ED).

3. Visitors

- All visitors will be excluded from visiting persons with suspected or known viral hemorrhagic fever. Parents of minors will be allowed to visit with strict adherence to PPE.

O. Patient Placement, Isolation and Cohorting for Hemorrhagic Fever

1. A designated location will be determined for use to place a patient with known or suspected viral hemorrhagic fever. The location will be separated into a hot zone, where full PPE is required; a warm zone, in which HCP have doffed their PPE and will use scrubs and slipper socks, and a cold zone, where HCP should have on clean scrubs.
2. HCP will enter the location fully donned except for boots and will doff all PPE in the hot zone. The warm zone will be used as the HCP travels to an area where he/she will shower, if available, and don clean scrubs prior to leaving the location..

P. Engineering and Environmental Controls for Viral Hemorrhagic Fevers

- Viral Hemorrhagic Fever

- a. General Principles of Cleaning and Decontamination of Surfaces

- i. HCP must be trained in and wear appropriate personal protective equipment (PPE) when conducting cleaning and decontamination activities.
- ii. Immediately clean and disinfect any surfaces contaminated with blood, urine, feces, vomit, or other body fluids. The clean-up cloth should be discarded in the red bag waste.
- iii. Treat any visible contamination with a suitable disinfectant (1:10 bleach or EPA-registered disinfectant active against non-enveloped viruses [as an additional level of precaution, most viral hemorrhagic fever viruses are enveloped viruses]).
- iv. Isolate areas of suspected contamination until decontamination is completed to minimize exposure to individuals not performing the work.
- v. Use signage to restrict access to areas of suspected or known contamination until decontamination is completed to minimize exposure to individuals not performing the work.

- b. Cleaning and Decontamination of Viral Hemorrhagic Fever Patient Spills on Surfaces

- i. If there is a bulk spill or bulk matter (e.g., vomit or diarrhea), cover the material fully with absorbent material (e.g., paper towels), then

pour disinfectant on to saturate the area. HCP will note the location of the nearest eyewash station.

- ii. Allow disinfectant to soak into spills for the recommended time period for the specific disinfectant being used (e.g., 1:10 bleach solution contact time is 1 minute). The clean-up cloth should be discarded in the red bag waste.
- iii. To assure complete disinfection, further disinfect the surface after the bulk material(s) has been removed, using a suitable disinfectant (e.g., 1:10 bleach solution).

c. Cleaning and Decontamination on Surfaces

- i. Wet wipe all surfaces with a cotton cloth (or microfiber) saturated with a 1:10 dilution of bleach and water or an EPA-registered disinfectant active against non-enveloped viruses.
 - These surfaces include but are not limited to: bedrails, overbed table, infusion pumps, IV poles, nurse call box, monitor cables, telephone, countertops, soap dispenser, paper towel dispenser, visitor chair, hood handles inside and outside, sharps container, TV remote, walls, bathroom toilet seat, shower fixtures, flush handle.
- ii. Wet mop floor with an EPA-registered disinfectant active against non-enveloped viruses
- iii. All cloths and mop heads will be discarded in red biosafety waste bag.

d. Management of Viral Hemorrhagic Fever Solid Waste per WHO guidance on regulations for the Transport of Infectious Substances (Category A).

- i. Use all PPE as specified for care of a Viral Hemorrhagic Fever Patient
- ii. Place waste into primary red bag; securely tie the bag
- iii. Treat the exterior surface of the primary bag with 1:10 bleach spray
- iv. Place primary bag into a secondary red bag and securely tie the outer bag
- v. Treat the exterior surface of the secondary red bag with 1:10 bleach spray
- vi. The double bagged waste should then be placed into the special Category A DOT waste drums provided by Stericycle

- vii. Store the special Category A DOT waste containers separate from other Regulated Medical Waste (RMW) in the secure (locked) truck provided by Stericycle
 - viii. The Category A DOT waste will be incinerated off-site
- e. Disposal of Liquid Human Waste from Patients with Viral Hemorrhagic Fever Patients in Orange County
- i. Liquid human waste must be decontaminated before discharge to the sanitary sewer
 - ii. Liquid human waste (e.g., urine, vomitus, loose stool) from patients with Viral Hemorrhagic Fever will be collected and contained in a disposable container (e.g., bed pan, wash basin) until decontamination is complete
 - iii. Chlorine bleach will be added to the waste container so that the final concentration in the container is 10% or a 1:10 dilution
 - iv. After a contact time of 2 minutes the liquid human waste may be carefully poured into a toilet and flushed into the sanitary sewer system
 - v. Any solid waste (including formed stool) in the treatment and care of patient with Hemorrhagic Fever will be discarded in the red bag waste.
 - vi. We must make and retain records pertaining to the decontamination of the liquid human waste prior to discharge to the sanitary sewer
 - vii. These records include: the source, the type of waste, the manner in which collected, the concentration and volume of disinfectant used, and the contact time.

Q. Exposure Reporting and Evaluation for Viral Hemorrhagic Fevers

1. Management of **simple breach in PPE without exposure** (i.e., no skin or mucous membrane exposure to body fluids noted)
 - a. Examples include a tear in outer but not inner glove, or outer gown tears
 - b. Both HCP should exit the room and doff their PPE. No other measures are necessary.
2. Management of accidental **percutaneous exposure** by needle stick, puncture,

laceration, or abrasion injury

- a. Do not panic!
- b. Immerse the exposed gloved hand, if possible, in 70% alcohol or 0.5% (1:10 dilution) chlorine for two minutes. If submersion is not possible (e.g., skin exposed to fluid on neck; use an alcohol wipe on the exposed area – keep wet for 2 minutes).
- c. Then remove glove and put on a new glove (otherwise after disinfection the wound may come in contact with contaminated PPE when undressing). The broken glove and the new glove will be removed together at the appropriate time during doffing.
- d. Notify PPE monitor of potential exposure. Proceed immediately to exit the patient care area respecting the doffing protocol in the doffing area.
- e. Thoroughly wash affected area with antiseptic – 2% chlorhexidine (CHG) soap and water, and then flush with running water for at least 30 seconds.
- f. Apply dressing if required outside the doffing area.
- g. Call the Needlestick hotline (For UNCMC HCP: 984-974-4480; for UNC University HCP: 919-966-9119) to initiate protocol to receive evaluation for possible exposure to bloodborne pathogens (i.e., hepatitis B & C, and HIV).
- h. HCP should follow updated CDC guidelines for monitoring after an exposure to viral hemorrhagic fever.

3. Management of accidental **unprotected contact with mucous membranes: Eyes**

- a. Do not panic!
- b. Notify PPE monitor of exposure. Proceed immediately to exit the patient care area respecting the doffing protocol in the doffing area.
- c. When doffed - immediately flush the affected eye with copious amounts of potable water outside of the doffing area (ideally using an eyewash station), lactated ringers or normal saline.
- d. Rinse with water.
- e. Call the Needlestick hotline (For UNCMC HCP: 984-974-4480; for UNC University HCP: 919-966-9119) to initiate protocol to receive evaluation for possible exposure to bloodborne pathogens (i.e., hepatitis B & C, and HIV).

4. Management of **accidental unprotected contact with mucous membranes: Nose/ mouth**

- a. Do not panic!

- b. Notify PPE monitor of exposure. Proceed immediately to exit the patient care area respecting the doffing protocol in the doffing area.
 - c. Immediately rinse out the mouth with 0.05% (1:100 dilution) chlorine solution but DO NOT SWALLOW.
 - d. Rinse mouth or nose with clean water.
 - e. Report exposure to the Incident Command Center. Call the Needlestick hotline (For UNCMC HCP: 984-974-4480 for UNC University HCP: 919-966-9119) to initiate protocol to receive evaluation for possible exposure to bloodborne pathogens (i.e., hepatitis B & C, and HIV).
5. Management of accidental unprotected contact of contaminated fluid with **non-intact skin**
- a. Do not panic!
 - b. Rinse (immerse if possible) the affected area with 0.5% (1:10 dilution) chlorine solution for 2 minutes.
 - c. Notify PPE monitor of exposure. Proceed immediately to exit the patient care area respecting the doffing protocol in the doffing area.
 - d. Wash with antiseptic – 2% chlorhexidine (CHG) soap and water.
 - e. Rinse with clean water.
 - f. Call the Needlestick hotline (For UNCMC HCP: 984-974-4480; for UNC University HCP: 919-966-9119) to initiate protocol to receive evaluation for possible exposure to bloodborne pathogens (i.e., hepatitis B & C, and HIV).

R. Staffing Needs and Personnel Policies for Viral Hemorrhagic Fever

- High Consequence Pathogen Team (HCPT) Member Requirements
 - a. Be approved by your supervisor or manager to be considered for the HCPT and by the appropriate HCPT Leader. (We have separate core team leaders for physicians, nurses, respiratory care, and laboratory personnel).
 - b. Complete a health questionnaire for Occupational Health:
 - i. All members must be screened to assess that they are safe to wear an N95 respirator or PAPR.
 - ii. In addition, we are excluding healthcare providers who are pregnant, immunocompromised, have non-intact skin, or cannot safely wear personal protective equipment (PPE).

- iii. All health information will be confidentially maintained by Occupational Health and will NOT be shared unless required by Public Health Department or Hospital Policy.
- c. Undergo training on the proper use of PPE including donning (putting on) and doffing (taking off) procedures. Several training sessions will be required. These will be conducted in a simulation lab that allows actual practice on manikins while you wear your PPE. There will be a schedule for initial training and ongoing retraining.
- d. While you are providing care to a patient with a Hemorrhagic Fever you will NOT be allowed to provide care to any other patient at UNC Medical Center.
- e. While you are providing care, you may not wear any jewelry (including wedding rings), or carry a pager or cell phone. Jewelry may interfere with proper cleaning and/or damage your PPE. Pagers and cell phones may distract you and increase your risk of contaminating yourself.
- f. During the time you provide care to a hemorrhagic fever patient, you will perform self-monitoring 2x per day (e.g., check of your temperature and possible symptoms) using a special form. If you have any symptoms you will be instructed to stay home and immediately call HealthLink.
- g. You may undergo active monitoring once per day by your local county health department (e.g., they will call/visit you each day). This monitoring will continue for 21 days after you last provide care for a hemorrhagic fever patient.
- h. Additional restrictions may be required by the NC State Health Department or UNC Medical Center. If you develop any fever or symptoms, we will arrange for you to have a medical evaluation and testing.

S. Hospital Access Controls for Viral Hemorrhagic Fever

1. Hospital Police will manage all restrictions on movement of visitors, patients, and HCPs. The decision to implement access controls will be made by the Incident Commander in conjunction with the Director of Hospital Police or delegate
2. The Incident Commander or Operations Section Chief will consider limiting hospital admissions, transfers, and discharges (in accordance with local/state recommendations and regulations) in the event that nosocomial high consequence respiratory pathogen transmission occurs.
3. The Hemorrhagic Fever designated care location will be secured by local authorities as appropriate.

T. Supplies and Equipment for Viral Hemorrhagic Fever

1. Assess anticipated needs for consumable (e.g., hand hygiene supplies, N95 respirators, goggles and face shields, gowns, gloves, surgical masks, Tyvek suits) and durable resources (e.g., ventilators, portable X-ray units, portable HEPA filtration units) that will be necessary to provide care for various numbers of patients with a high consequence pathogen.
2. Reuse and extended use of PPE should follow CDC and FDA guidelines as appropriate in the event of regional or national PPE shortages.
3. If N95 respirators are not available, alternatively use N95 respirators from another vendor, followed by N100 respirators, N99 respirators, and surgical masks. Any change in the type of respirator used would require additional fit testing of HCPs.
4. A PAPR should be used for high-risk, aerosol-generating procedures on patients with a high consequence pathogen. The industrial hygienists in Environmental Health and Safety will be responsible for overseeing appropriate PAPR use.
5. Central Distribution or Director of Emergency Management will maintain at least a one to two-month surplus of consumable supplies for personal protective equipment.
6. In the event of a shortage of resources during a high consequence pathogen outbreak, an ad hoc committee will be established to determine the allocation of scarce resources (e.g., ICU beds, ventilators) in accordance with the Hospital Command Center and Incident Management Team.
7. If there is a shortage of resources and alternate supplies are acquired, HCP must be adequately trained on appropriate PPE. Additional stockpiles of needed PPE may be required if it is consistent with the donning and doffing training.

U. Communication and Reporting

1. In accordance with the Crisis Communication Annex of the Emergency Operations Plan, and on an as needed basis the health care staff will have a conference call with the state and local health department and University personnel to report and receive information on high consequence pathogen activity in the healthcare facility and the community. This call may also discuss discharge planning of high consequence pathogen patients with health department officials to ensure appropriate follow-up and case management in the community.
2. UNC Health Public Affairs will manage all press releases and communications with the general public, news media, and HCPs. HealthLink or other alert messaging may be used to disseminate these messages to patients and HCPs.

IV. References

COVID-19. Centers for Disease Control and Prevention: [Coronavirus Disease 2019 \(COVID-19\) | CDC](#)

Ebola (Ebola Virus Disease). Center for Disease Control and Prevention: <http://www.cdc.gov/vhf/ebola/index.html>

Ebola outbreak-home. World Health Organization <http://www.who.int/csr/disease/ebola/en/>

NCDHHS Ebola Information. NC Division of Public Health. <http://www2.ncdhhs.gov/ebola/>

Public Health Guidance for Community-Level Preparedness and Response to Severe Acute Respiratory Syndrome (SARS). Version 2/3. Centers for Disease Control. Atlanta, GA. May 2005. www.cdc.gov/ncidod/sars/sarsprepplan.htm

COVID-19. NC Department of Health and Human Services: [North Carolina COVID-19 Metrics | NC COVID-19 \(ncdhhs.gov\)](#)

HHS Pandemic Influenza Plan. US Department of Health and Human Services. November 2005. [HHS Pandemic Influenza Plan \(cdc.gov\)](#)

NC Pandemic Influenza Plan. NC Division of Public Health. January 2006, last updated December 2016. [NC DPH: N.C. Pandemic Influenza Plan](#)

V. Related Policies

[Infection Control Response to the Intentional Use of a Biothreat Agent](#)

[Environmental Services](#)

Attachments

[1: Definitions and Acronyms](#)

[2: Respiratory Hygiene Poster](#)

[3: PPE Removal Process Poster](#)

[4: Important Contacts](#)

[5: Special Airborne Isolation Sign](#)

[6: Special Precautions Isolation Sign](#)

[7: Entry Log for Individuals Entering the Room of a Patient with Suspected or Confirmed High Consequence Pathogen](#)

[8: Notification Pathway - Clinic](#)

9: Notification Pathway - ED

Approval Signatures

Step Description	Approver	Date
Policy Stat Administrator	Kimberly Novak-Jones: Nurse Educator	12/2021
	Thomas Ivester: CMO/VP Medical Affairs	12/2021
	Emily Vavalle: Dir Epidemiology	10/2021
	Sherie Goldbach: Project Coordinator	10/2021

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