


## Infection Control Manual

	Policy Name	<b>Highly Communicable Respiratory Diseases: Preparedness and Response Plan</b>
	Policy Number	<b>IC 0026</b>
	Date this Version Effective	<b>Mar 2009</b>
	Responsible for Content	<b>Hospital Epidemiology</b>

### I. Description

This policy describes the management of patients and personnel during a pandemic influenza outbreak or other highly communicable respiratory disease.

### II. Rationale

Several pathogenic microbes that are transmitted principally by the droplet or airborne routes may lead to severe respiratory disease including avian influenza (H5N1), SARS-CoV, and pulmonary plague (etiologic agent, *Yersinia pestis*). Planning and preparedness are critical to the successful management of an epidemic involving a highly communicable respiratory disease. Rapid implementation and strict adherence to this policy can reduce disease transmission within UNC Health Care.

### III. Policy

#### A. Definition of a Highly Communicable Respiratory Disease

For the purpose of this plan, highly communicable respiratory diseases will include pandemic influenza strains including avian influenza (H5N1), SARS-CoV, *Y. pestis*, agents of hemorrhagic fevers (Ebola, Marburg, Lassa, Congo-Crimean fevers), certain hanta viruses, and certain pox viruses (e.g., smallpox, monkey pox).

The Director or Medical Director of Hospital Epidemiology, the Centers for Disease Control and Prevention, or the North Carolina State Epidemiologist may designate other agents 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), Hospital Epidemiology may amend this plan accordingly and post updates on the hospital's infection control website.

#### B. Notification and Activation

1. The Hospital Emergency Incident Command System (HEICS) will be activated when there are one or more cases of highly communicable respiratory diseases in the Hospitals.
2. In all cases of suspected or known highly communicable respiratory diseases visits or admissions, the Infection Control Professional and receiving UNC Health Care location should be notified prior to the patient being triaged to a UNC Health Care facility. It is the responsibility of the attending physician or his/her designee to notify the Infection Control Professional.
3. All Health Care personnel may be reached via hospital operator, 966-4131
  - a. Infection Control Professional: 919-216-6652
  - b. Infectious Disease Adult Consult: 919-216-0626
  - c. Infectious Disease Pediatric Consult: May be reached via hospital operator, 966-4131
  - d. Nursing House Supervisor: 919-347-1922
  - e. ED Attending: 919-966-4721
  - f. Hospital Police: 919-966-3686

- g. Orange County Health Department: 919-968-2022
- h. State Communicable Diseases: 919-733-3419
- i. Medical Examiner: 919-966-2253, 800-672-7024

### C. General Surveillance and Triage

1. In the presence of *global* highly communicable respiratory disease activity (*but no cases in North Carolina*):
  - a. Signs (in appropriate languages including English and Spanish) will be placed outside the Emergency Department (ED) and other hospital entrances requesting that persons with respiratory symptoms and epidemiologic exposure identify themselves to the triage nurse or greeter/clinic intake staff.
  - b. Ideally, a mask should be placed on the patient at the ED or clinic intake/registration desk. Posted visual alerts will recommend “respiratory hygiene precautions.” (Appendix 2)
  - c. Clinicians, intake and triage staff will be regularly updated via email, updates posted on the Hospital Epidemiology web page, memoranda, and meetings on the status of the highly communicable respiratory disease locally, nationally, and internationally.
  - d. Intake and triage staff will be trained on how to assess risks for highly communicable respiratory disease and use any applicable tools (thermometers, respiratory signs/symptoms checklists) to screen patients. Training will be provided by Hospital Epidemiology.
2. In the presence of highly communicable respiratory disease activity *in North Carolina (but no cases within UNC Health Care facilities)*:
  - a. Patients with suspect or probable highly communicable respiratory disease requiring medical evaluation should be seen in the Infectious Disease Clinic (the Infectious Disease Clinic must be notified prior to the patient’s arrival) rather than another outpatient clinic or the Emergency Department (ED).
  - b. The ED should only be used for patients who require acute medical evaluations or interventions, or are likely to require hospital admission.
  - c. The patient will be required to wear a surgical mask upon arrival and will be given the mask by intake staff.
3. In the presence of highly communicable respiratory disease activity *in North Carolina and cases at UNC Health Care facilities*:
  - 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). 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. Separate screening entrances will be established for patients, staff, and visitors (if warranted, visitors may be excluded from entering the healthcare facility).
  - b. A “Highly Communicable Respiratory Disease Evaluation Center” will be used to separate patients with suspected highly communicable respiratory disease from other patients seeking care at UNC Health Care. The Infectious Disease Clinic will be used as the “Highly Communicable Respiratory Disease Evaluation Center.” To prevent exposure of staff, patients and visitors, the outside entrance/emergency exit will be used as it allows direct access without entering from a hospital corridor.
  - c. Patients scheduled for evaluations not involving a potentially highly communicable respiratory disease will be triaged to an alternate Infectious Disease clinic site (to be determined by the Incident Commander in consultation with the Director of the Infectious Disease Clinic).

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4. When the number of potential highly communicable respiratory disease cases *exceeds the capacity of the Infectious Disease Clinic (estimated to be >100 persons per day)*:
  - a. The Family Practice Center will be used as the “Highly Communicable Respiratory Disease Evaluation Center.”

### D. Triage and Management of Cases of Highly Communicable Respiratory Diseases

1. To the extent possible (and with help of the local health departments), care for highly communicable respiratory disease cases should remain with their primary physician or local hospital with consultation from the local 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 ED physician (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.
3. If patient has already presented at a local UNC Health Care facility, the local physician should ascertain the level of illness and then discuss triage with the ED physician (severe disease) or the Infectious Disease Adult/Pediatric (as appropriate) Consult Attending (mild/moderate disease). Patients with mild/moderate disease will be triaged to their home and provided with an appointment for after-hours evaluation in Infectious Disease Clinic.
4. If patient at a non-UNC Health Care facility is under consideration for transfer to a UNC Health Care facility, either the ED Attending or the Infectious Disease Consult Attending (adult or pediatric as appropriate) should be involved in the triage decision. If possible the patient should be managed at the outside facility or with consultation from the local (e.g., Orange County) health department. If not possible, the patient should be triaged to the Infectious Disease Clinic for an after-hours evaluation (mild to moderate illness) or ED (severe disease). The ED and Infectious Disease Consult attendings should always be notified prior to transfer.

Patient Source	Responsible Physician For Consultation	Location For Patient Evaluation
Hospital employee*	Medical Director, Health Care OHS	ID clinic (after hours)
University employee (including employees from SARS lab)*	Medical Director, University EOHS	ID clinic (after hours)
UNC Health Care (local facility): Minor to moderate disease (Symptoms plus epidemiologic exposure)	ID consult MD (adult or pediatrics)	ID clinic (after hours)
UNC Health Care (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 phone) (Symptoms plus epidemiologic exposure)	ED physician (+ ID consult)	ED
Non-UNC Health Care facility: Minor to moderate disease (Symptoms plus epidemiologic exposure)	Local physician	Physician office, health dept.
Non-UNC Health Care 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)

**\*Work related illnesses and injuries only**

### **E. Hospital Services for Management of Patient**

1. Nursing House Supervisor will assist in evaluating nursing coverage options for Infectious Disease Clinic and may assist in coordinating couriers for lab specimens.
2. Portable x-rays will be obtained in Infectious Disease Clinic by Radiology.
3. Patient specimen management will be handled by the McLendon Laboratories per laboratory policies.
4. Infection Control Professional will be available to assure compliance with Isolation Precautions including proper use of personal protective equipment (PPE).
5. Hospital Epidemiology will be responsible for completing all CDC case reports and surveillance forms.

### **F. Clinical Evaluation of Patients**

1. In the absence of known highly communicable respiratory disease activity worldwide: Perform a routine evaluation of respiratory illnesses and maintain a low index of suspicion for highly communicable respiratory diseases. In the absence of highly communicable respiratory disease transmission anywhere in the world, the overall likelihood that a given patient with fever and respiratory illness has a highly communicable respiratory disease will be exceedingly low unless there are both typical clinical findings and some accompanying epidemiologic evidence that raises the suspicion of exposure to highly communicable respiratory diseases.
2. Once highly communicable respiratory disease activity has been documented anywhere in the world: The positive predictive value of even early clinical symptoms (e.g., fever or respiratory symptoms in the absence of pneumonia), while still low, may be more acceptable if used in combination with an epidemiologic link to a setting in which highly communicable respiratory disease has been documented.
3. Symptoms of patients will vary based on the highly communicable respiratory disease under consideration. WHO and CDC will develop case definitions which will be adopted by UNC HC and posted on our website as they are developed and updated.
4. Deaths/Human Remains. Instruct staff to wear appropriate personal protective equipment (PPE). (Appendices 3-4)

### **G. Infection Control for Highly Communicable Respiratory Diseases**

Transmission risk of highly communicable respiratory diseases in healthcare facilities depends on the extent of highly communicable respiratory disease activity in the community but also highly communicable respiratory disease activity in the facility. The decision for escalating infection control measures will be based on highly communicable respiratory diseases activity and transmission. For infection control guidance on potential agents of bioterrorism, please refer to Bioterrorism Policy.

1. Isolation Precautions
  - a. Staff should be reminded about the importance of strict adherence to and proper implementation of standard infection control, especially hand hygiene and isolation.
  - b. All patients with suspected highly communicable respiratory diseases seen in the ED or the ID Clinic should immediately be placed in a private room meeting airborne isolation requirements (i.e.,  $\geq 6$  air exchanges per hour, air exhausted directly to the outside, negative pressure). A surgical mask should be placed on the patient until placement in an AIIR (Airborne Infection Isolation Room).

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- c. Staff should perform and document a tissue test to ensure negative pressure before placing patient in the room. The tissue test must be performed daily thereafter.
- d. All patients with suspected highly communicable respiratory disease should be placed on Special Airborne/Contact Precautions in an AIIR room (Appendix 4).
- e. Protocol for entering Special Airborne/Contact Precaution room
  - i. N95 respirator (medical clearance, fit test and training required before use); secure ties or elastic bands at middle of head and neck; fit flexible band to nose bridge; fit snug to face and below chin)
  - ii. Gloves (extend to cover wrist of isolation gown)
  - iii. Gown (fully cover torso from neck to knees, arms to end of wrists, and wrap around the back; fasten in back of neck and waist)
  - iv. Protective eyewear
  - v. Goggles (for aerosol generating procedures)
- f. Protocol for leaving room (except for respirator, remove PPE at doorway or in anteroom)
  - i. At the door just prior to exit:
    - Remove gloves by peeling off inside-out. Dispose of gloves in trash.
    - Remove goggles or face shield by handling the head band or ear pieces.
    - Remove gown by unfastening the back and then remove with inside outward (touching inside of gown only). Dispose of gown in trash.
    - Exit room.
  - ii. At the door just outside of room:
    - Remove N-95 respirator and discard in trash.
    - Perform hand hygiene with antiseptic soap and water immediately after removing all PPE.
    - Put on clean exam gloves and decontaminate goggles (if reusable) by wiping exterior surface with alcohol or EPA-approved disinfectant.
  - iii. Remove gloves and perform hand hygiene with antiseptic soap or alcohol based hand rub.
  - iv. Signs describing the protocol for entering and leaving the room will be placed on the inside and outside of the door (Appendix 3 and Appendix 4, front and back of Special Airborne Isolation Sign).
- g. A log will be maintained of all persons entering the room of patients with a suspect or probable highly communicable respiratory disease (Appendix 5).
- h. Aerosol-generating procedures (e.g., sputum induction, airway suctioning, aerosol medication therapy, bronchoscopy, intubation): Special Airborne/Contact Precautions (including eye protection for all patients) must be used for performing all procedures that generate aerosols.
  - i. Limit the use of aerosol-generating procedures on highly communicable respiratory disease patients to those that are deemed medically necessary.
  - ii. Use clinically appropriate sedation during intubation and bronchoscopy to minimize resistance and coughing during the procedure

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- iii. Use bacterial/viral filters on exhalation valves of mechanical ventilators.
  - iv. Eye protection should consist of goggles that fit snugly around the eyes.
  - v. A face shield may be worn over goggles to protect exposed areas of the face but should not be used as a primary form of eye protection for these procedures.
2. Transport
- a. Whenever possible, hospitalized highly communicable respiratory disease 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 highly communicable respiratory disease. When patient is being transported for essential diagnostic tests or from clinic/ED to hospital room, have patient wear a surgical mask. Always notify receiving area prior to patient transport. When transporting patients, identify a path segregated from the main traffic routes as much as possible. Ventilators used for patient transport must use bacterial/viral filters on the exhalation valves.
  - c. Transporters should wear N-95 respirator, gloves, gown, and eye protection.
3. Laboratory
- a. Laboratory specimens for patients with highly communicable disease patients will be hand carried to the laboratory (i.e., use of the tube system is prohibited).
  - 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 highly communicable respiratory disease.
    - i. If necessary, an isolation/quarantine order will be sought from the State or County Health Department to enforce this policy.
    - ii. Visitors will be restricted to the guardians of minor children and no more than 2 significant others (e.g., spouse, adult brother/sister), who 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 State Epidemiologist or the Medical Director, Hospital Epidemiology.
    - iii. Visitors must undergo daily health screening by a trained professional prior to visitation. Health screening forms will be placed in the patient's medical record.
    - iv. Visitors must receive infection control training and comply with infection control measures.
    - v. To allow for PPE-free time for the visitor, the maximum time per visit is two hours.
    - vi. Symptomatic visitors exposed to highly communicable respiratory disease patients will be excluded from visitation and reported to the local health department for follow-up.

### **H. Patient Placement, Isolation and Cohorting**

1. Patients with suspect or probable highly communicable respiratory diseases 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. Airborne Infection Isolation Rooms (AIIRs) are available on multiple wards

(e.g., 6 Bed Tower has 12 AIIRs and 3 Anderson has 5 AIIRs) and the following intensive care units; Medical Intensive Care Unit (MICU), Cardiac Care Unit (CCU), and Pediatric Intensive Care Unit (PICU). A complete, up-to-date listing of AIIRs can be obtained from Hospital Epidemiology's website.

- a. Preference will be given to housing floor status adult patients on 6 Bed Tower. Ideally, rooms 6300-6301 will be used and a plastic barrier constructed across the corridor to create an "anteroom." The exit door at the end of the corridor will be rendered unable to be opened from the stairwell (if possible). If 6 Bed Tower is full, then the AIIRs in 3 Anderson will be used. Floor status pediatric patients will be housed in AIIRs in the Children's Hospital.
  - b. Adult patients requiring ICU care will be housed in the MICU. Pediatric patients requiring ICU care will be housed in the PICU.
  - c. The number of staff allowed to enter the room should be minimized to only essential personnel. Students should be prohibited from participating in the care of patients with suspect or probable highly communicable respiratory diseases.
  - d. Ideally, a monitor will be placed outside the patient's door to assist with proper use of PPE and maintain the entry log (Appendix 5).
3. A lack of AIIRs and/or a need to concentrate infection control 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) following approval from the Incident Commander, Federal and State authorities, and to the extent that staff can manage the number of hospitalized patients.
  - d. In the context of significant highly communicable respiratory disease 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 highly communicable respiratory disease case definition; patients who meet the highly communicable respiratory disease case definition; non-exposed patients.

### **I. Engineering and Environmental Controls**

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, investigate whether non-AIIR rooms can be modified to achieve appropriate airflow direction and/or air exchanges for care of highly communicable respiratory disease patients.
3. If the patient must temporarily leave the Airborne Precautions room, the door must be kept closed for a minimum of 30 minutes prior to anyone entering without wearing a respiratory protection device. Likewise, the door should remain closed for a minimum of 30 minutes with the isolation sign displayed when a patient is discharged from an Airborne Precautions

room. The 30 minute time period will allow the room ventilation system to remove any droplets/droplet nuclei.

4. Environmental disinfection policies should be followed:
  - a. Following discharge, hospital rooms housing highly communicable respiratory disease patients should receive terminal cleaning and disinfection using UNC Hospitals' Environmental Service policy. Environmental service personnel must wear gloves, gowns, N-95 respirator and eye protection (i.e., goggles or face shield) until cleaning 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 highly communicable respiratory diseases must be disinfected immediately after use with an EPA-approved disinfectant-detergent (e.g., 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 Director of Hospital Epidemiology.

### **J. Exposure Reporting and Evaluation**

1. Occupational exposure consists of:
  - a. providing care or being in the room with a highly communicable respiratory disease patient without wearing proper PPE or
  - b. entering a vacated highly communicable respiratory disease patient's room without wearing a respirator when the patient has not been out of the room for a minimum of 30 minutes.
2. All occupational exposures must be reported to the appropriate occupational health service provider. The occupational health service providers will notify the local health department of all employee exposures.
3. In the setting of human to human transmission in the local geographic area, any employee with respiratory symptoms should notify his/her occupational health provider via phone to assess his/her need for evaluation.
4. Management of asymptomatic healthcare workers exposed to highly communicable respiratory disease.
  - a. Persons who have been exposed to a highly communicable respiratory disease 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 (influenza = 1-5 days; SARS = 1-10 days). 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 workers who are asymptomatic, depending upon the disease, may be furloughed at the discretion of the Medical Director of the applicable occupational health service during the incubation period of the disease.
  - c. Exposed unprotected healthcare workers 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 Care employees
    - ii. University Employee Occupational Health Clinic: UNC employees

- 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 workers should take their own temperature 2x per day and report any elevated temperatures (i.e.,  $\geq 38.0^{\circ}\text{C}$ ) to their occupational health provider.
  - e. Afebrile healthcare workers in some or all units with respiratory symptoms may be required to undergo rapid testing for influenza A, influenza B, and RSV depending on the nature of the highly communicable disease pathogen and time of year. Depending on the highly communicable disease pathogen, healthcare workers who test negative may be allowed to continue to work, while wearing a mask and practicing good hand hygiene.
5. Management of symptomatic healthcare workers exposed to a highly communicable respiratory disease.
- a. Exposed healthcare workers 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 as follows. An appropriate health provider (e.g., Medical Director Occupational Health, Nurse Practitioner Occupational Health) will evaluate symptomatic persons as medically necessary in the Infectious Disease Clinic. Alternatively, symptomatic health care workers could be medically evaluated in alternative locations as directed by the Incident Commander.
  - b. If symptoms do not progress to meet the suspect highly communicable respiratory disease definition within the time period to be determined by 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. 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 workers with a high-risk exposure to a highly communicable respiratory disease
- To manage an unprotected high-risk exposure of a worker (i.e., worker in the same room as probable highly communicable respiratory disease patient during a high-risk aerosol-generating procedure and infection control precautions are either absent or breached) with no symptoms of highly communicable respiratory disease, the worker:
- a. Should be excluded from duty for a time period that depends on the specific respiratory pathogen (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 employees who are exposed to a highly communicable respiratory disease (e.g., SARS, avian influenza) in a University research lab should follow the specific University Occupational Health policy for management of exposures.

### **K. Pre- and Post-Exposure Prophylaxis**

1. Pre-exposure antiviral prophylaxis may be made available to selected healthcare workers by the appropriate occupational health service. Generally, pre-exposure prophylaxis for pandemic influenza would be taken for at least 6 weeks. Guidelines published by CDC, the

NC State Health Department and professional organizations will be used by Hospital Epidemiology 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 workers by the appropriate occupational health services. Generally, post-exposure prophylaxis for pandemic influenza would be taken for at least 7 days. Guidelines published by CDC, the NC State Health Department and professional organizations will be used by Hospital Epidemiology and the appropriate occupational health service in determining which groups are to be offered prophylaxis.
3. Vaccine may be made available for healthcare workers 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 employees 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.

### **L. Staffing Needs and Personnel Policies**

1. Following appropriate infection control and personal protection equipment training and fit-testing, all healthcare workers are expected to conduct their normal level of job activities in order to provide care for patients with known or suspected highly communicable respiratory diseases
2. During a highly communicable respiratory disease outbreak of any size, existing staffing shortages may be amplified by illness among staff members, fear and concern about the disease, and isolation and quarantine of exposed staff or ill/exposed family members. Staffing shortages are likely to escalate as an outbreak progresses. The strain involved in highly communicable respiratory disease patient care and prolonged use of personal respiratory protection may intensify staffing challenges. 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. The staffing needs for highly communicable respiratory disease patient management may be greater than that normally provided for other non-ICU and ICU patients to allow PPE-free time. Use of alternative staffing resources (e.g., retired healthcare workers, volunteers, contract workers, students) may be needed but will require training and support (including malpractice insurance, occupational health services) during the outbreak response.
3. During a highly communicable respiratory disease outbreak of any size, all infection control professionals will be needed to formally monitor and reinforce compliance with PPE measures and policies.
4. Quarantine authority belongs to the health department. If quarantine is used as an exposure management tool, some healthcare workers may be placed on 'home/work restrictions' to ensure sufficient staffing levels. Healthcare workers on home/work restrictions should travel only between home and the healthcare facility for the duration of the restriction. Should quarantine be necessary, the employee will be instructed by the health department regarding details on the restriction.
5. Health care workers have access to mental health professionals to help them cope with the emotional strain of managing a highly communicable respiratory disease outbreak (e.g., Employee Assistance Program, Critical Incident Stress Management, Psychiatry)

### **M. Hospital Access Controls**

1. Consider limiting all hospital visitors and involve police services to enforce access limitations in the event there are a few cases of highly communicable respiratory disease in the facility but no nosocomial transmission. Hospital Police will manage all restrictions on movement of visitors, patients, and employees.
2. Consider limiting hospital admissions, transfers, discharges (in accordance with local/state recommendations and regulations) in the event that nosocomial highly communicable respiratory disease transmission occurs.

### **N. Supplies and Equipment**

1. Both consumable (e.g., PPE) and durable (e.g., ventilators) supplies will be needed to care for patients.
2. Assess anticipated needs for consumable (e.g., hand hygiene supplies, N-95 respirators, goggles and face shields, gowns, gloves, surgical masks) 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 highly communicable respiratory disease patients.
3. N-95 respirators may be reused following guidelines by Environmental Health and Safety and Infection Control. The appropriateness and method for reuse following a decontamination procedure would be determined by the nature of the highly communicable respiratory disease and per strict recommendations from Infection Control.
4. If N-95 respirators are not available, alternatively use N-95 respirators from another vendor, followed by N-100 respirators, N-99 respirators, and surgical masks. Any change in the type of respirator used would require additional fit testing of employees. A PAPR should be used for high-risk procedures. The industrial hygienists in Environmental Health and Safety will be responsible for overseeing appropriate PAPR use.
5. Central Distribution will maintain at least a one to three-month surplus of consumable supplies.
6. In the event of a shortage of resources during a highly communicable respiratory disease outbreak, the Chief of Staff will appoint an ad hoc committee to determine the allocation of scarce resources (e.g., ICU beds, ventilators). Members will be drawn from the UNCHC ethics committee as well as from medical staff with expertise on the specific situation.

### **O. Communication and Reporting**

1. A highly communicable respiratory disease outbreak will generate a need for rapid analysis of the status of patients and transmission in the healthcare facility and reporting of this information to employees, public health officials as well as to the public, the media, and political leaders.
2. On an as needed basis (e.g., two times per day, daily) 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 highly communicable respiratory disease activity in the healthcare facility and the community. This call may also discuss discharge planning of highly communicable respiratory disease patients with health department officials to ensure appropriate follow-up and case management in the community.
3. Public Affairs will manage all press releases and communications with the general public, news media, and employees. Health Link or other alert messaging may be used to disseminate these messages to patients and employees.

### **P. Respiratory Hygiene**

1. For all patients with febrile and/or respiratory illnesses, perform a routine diagnostic and therapeutic workup and use Droplet Precautions.
2. Emphasize to all visitors/staff/patients, the importance of respiratory hygiene/cough etiquette to help decrease transmission of communicable respiratory pathogens including highly communicable respiratory pathogens.
  - a. Provide surgical masks to all patients with symptoms of a respiratory illness. Provide instructions on the proper use and disposal of mask.
  - b. For patients who cannot wear a surgical mask, provide tissues and instructions on when to use them (i.e., when coughing, sneezing, or controlling nasal secretions), how and where to dispose of them and the importance of hand hygiene after handling this material.
  - c. Provide hand hygiene materials in waiting room areas and encourage patients with respiratory symptoms to perform hand hygiene.
  - d. Designate an area in the waiting room where patients with respiratory symptoms can be segregated (ideally by at least 3 feet) from other patients who do not have respiratory symptoms.
  - e. Place patients with respiratory symptoms in a private room (preferred) or cubicle as soon as possible for further evaluation.
  - f. Implement use of surgical masks by healthcare personnel during the evaluation of patients with respiratory symptoms.
  - g. Consider the installation of plexiglass barriers at the point of triage or registration to protect healthcare personnel from contact with respiratory droplets.
  - h. If no barriers are present, instruct registration and triage staff to remain at least 3 feet from unmasked patients and to consider wearing surgical masks during respiratory infection season and during an outbreak of a highly communicable respiratory disease.
  - i. Continue to use Droplet Precautions to manage patients with respiratory symptoms until it is determined that the cause of symptoms is not an infectious agent that requires precautions beyond Standard Precautions.

#### **IV. References**

- A. Public Health Guidance for Community-Level Preparedness and Response to Severe Acute Respiratory Syndrome (SARS). Version 2. Centers for Disease Control. Atlanta, GA. July 2004. [www.cdc.gov/ncidod/sars/sarsprepplan.htm](http://www.cdc.gov/ncidod/sars/sarsprepplan.htm)
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#### **V. Reviewed/Approved by**

Hospital Infection Control Committee

#### **VI. Original Policy Date and Revisions**

Revised on June 2003, Mar 2006, Mar 2009

## Appendix 1: Definitions and Acronyms

### Definitions:

Avian flu is caused by an avian specific influenza virus (e.g., H5N1), which occurs naturally among birds

Cohort is a defined population that has a common exposure or disease.

Communicable disease is an illness that is due to a specific infectious agent that arises through transmission of that agent from an infected person either directly or indirectly.

Epidemiologic Exposure is the proximity or contact with a source of a disease agent (e.g., exposure to sick birds for avian flu).

Incubation Period is the time period between invasion of an infectious agent and the appearance of the first sign or symptom of disease.

Isolation is the separation of infected persons or animals from others for the duration of the period of communicability in order to prevent or limit transmission of the infectious agent.

Isolation Precautions are infection control measures used for decreasing the risk of transmission of microorganisms in healthcare facilities.

Nosocomial infection is an infection that is associated with the healthcare setting.

Pandemic flu is flu that causes a global outbreak, or pandemic, of serious illness that spreads easily from person to person.

Quarantine is the restriction of activities for well persons or animals whom have been exposed to a communicable disease for the duration of the incubation period in order to prevent transmission of the infectious agent.

Seasonal flu is a contagious respiratory illness caused by influenza viruses A and B.

Surveillance is the systematic ongoing collection, collation, and analysis of data and the timely dissemination of information to those that need to know so that action can be taken.

### Acronyms:

AIIR—Airborne Infection Isolation Room

CCU—Coronary Care Unit

CDC—Centers for Disease Control and Prevention

ED—Emergency Department

HEICS—Hospital Emergency Incident Command System

ID—Infectious Disease

MD—Doctor of Medicine

MICU—Medicine Intensive Care Unit

N95, N99, N100—Respirators that are N-series filters with 95%, 99%, or 100% filtration efficiency, respectively

PACU— Post Anesthesia Care Unit

PAPR—Powered Air Purifying Respirator

PICU—Pediatric Intensive Care Unit,

PPE—Personal Protective Equipment

SARS-CoV—Severe Acute Respiratory Syndrome-Coronavirus

WHO—World Health Organization

Appendix 2: Respiratory Hygiene Poster

**If this is you...**

¡Si este es usted...



+



**this is what to do!**

esto es lo que debe hacer!



+

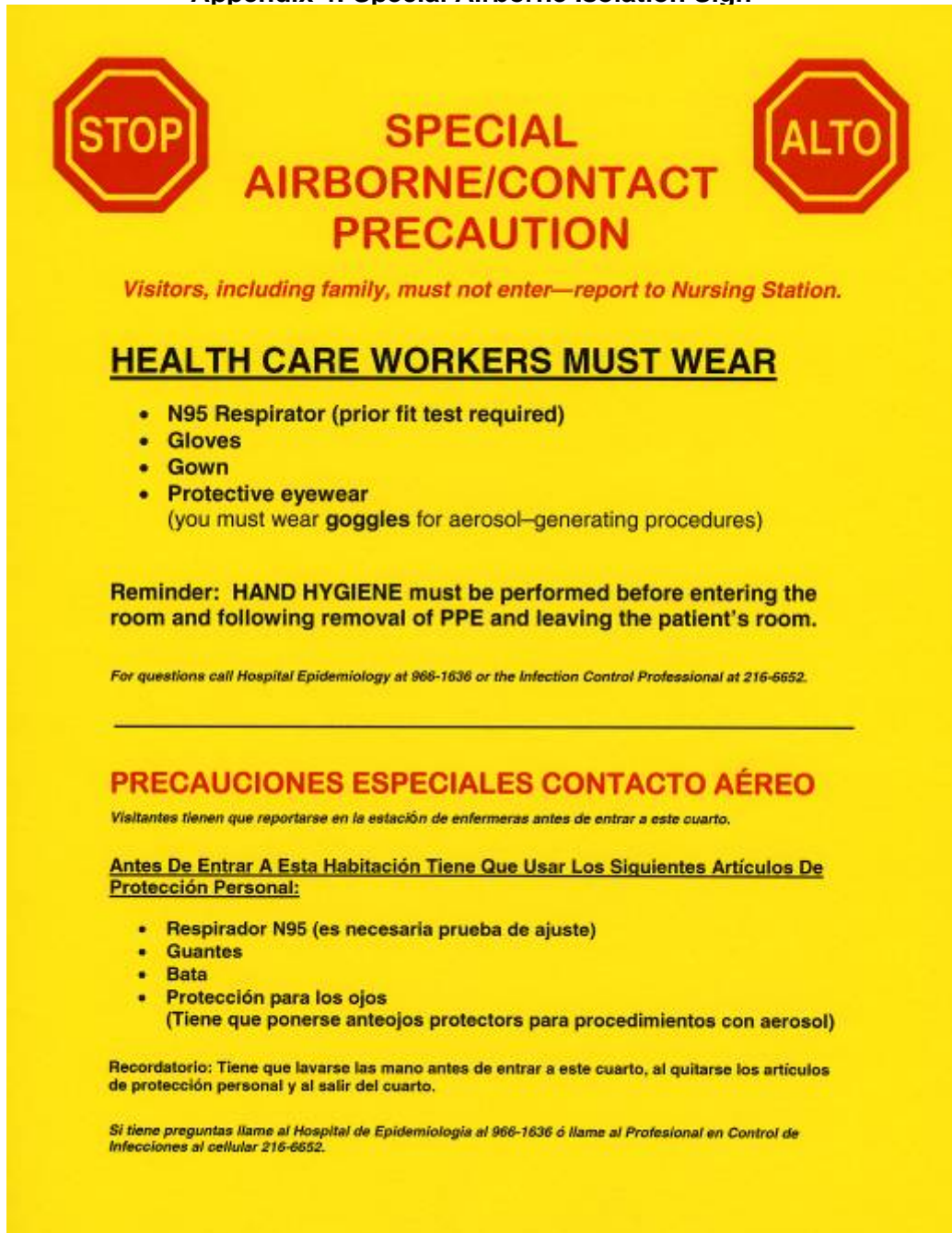


Appendix 3: PPE Removal Poster

SEQUENCE FOR REMOVING PERSONAL PROTECTIVE EQUIPMENT (PPE)	SECUENCIA PARA QUITARSE EL EQUIPO DE PROTECCIÓN PERSONAL (PPE)
<p>Except for respirator, remove PPE at doorway or in anteroom. Remove respirator after leaving patient room and closing door.</p>	<p>Con la excepción del respirador, quítese el PPE en la entrada de la puerta o en la antesala. Quítese el respirador después de salir de la habitación del paciente y de cerrar la puerta.</p>
<p><b>1. GLOVES</b></p> <ul style="list-style-type: none"> <li>■ Outside of gloves is contaminated!</li> <li>■ Grasp outside of glove with opposite gloved hand; peel off</li> <li>■ Hold removed glove in gloved hand</li> <li>■ Slide fingers of ungloved hand under remaining glove at wrist</li> <li>■ Peel glove off over first glove</li> <li>■ Discard gloves in waste container</li> </ul>	<p><b>1. GUANTES</b></p> <ul style="list-style-type: none"> <li>■ ¡El exterior de los guantes está contaminado!</li> <li>■ Agarre la parte exterior del guante con la mano opuesta en la que todavía tiene puesto el guante y quíteselo</li> <li>■ Sostenga el guante que se quitó con la mano enguantada</li> <li>■ Deslice los dedos de la mano sin guante por debajo del otro guante que no se ha quitado todavía a la altura de la muñeca</li> <li>■ Quítese el guante de manera que acabe cubriendo el primer guante</li> <li>■ Arroje los guantes en el recipiente de desechos</li> </ul>
<p><b>2. GOGGLES OR FACE SHIELD</b></p> <ul style="list-style-type: none"> <li>■ Outside of goggles or face shield is contaminated!</li> <li>■ To remove, handle by head band or ear pieces</li> <li>■ Place in designated receptacle for reprocessing or in waste container</li> </ul>	<p><b>2. GAFAS PROTECTORAS O CARETA</b></p> <ul style="list-style-type: none"> <li>■ ¡El exterior de las gafas protectoras o de la careta está contaminado!</li> <li>■ Para quitárselas, tómelas por la parte de la banda de la cabeza o de las piezas de las orejas</li> <li>■ Colóquelas en el recipiente designado para reprocessar materiales o de materiales de deshecho</li> </ul>
<p><b>3. GOWN</b></p> <ul style="list-style-type: none"> <li>■ Gown front and sleeves are contaminated!</li> <li>■ Unfasten ties</li> <li>■ Pull away from neck and shoulders, touching inside of gown only</li> <li>■ Turn gown inside out</li> <li>■ Fold or roll into a bundle and discard</li> </ul>	<p><b>3. BATA</b></p> <ul style="list-style-type: none"> <li>■ ¡La parte delantera de la bata y las mangas están contaminadas!</li> <li>■ Desate los cordones</li> <li>■ Tocando solamente el interior de la bata, pásela por encima del cuello y de los hombros</li> <li>■ Voltee la bata al revés</li> <li>■ Dóblela o enróllela y deséchela</li> </ul>
<p><b>4. MASK OR RESPIRATOR</b></p> <ul style="list-style-type: none"> <li>■ Front of mask/respirator is contaminated — DO NOT TOUCH!</li> <li>■ Grasp bottom, then top ties or elastics and remove</li> <li>■ Discard in waste container</li> </ul>	<p><b>4. MÁSCARA O RESPIRADOR</b></p> <ul style="list-style-type: none"> <li>■ La parte delantera de la máscara o respirador está contaminada — ¡NO LA TOQUE!</li> <li>■ Primero agarre la parte de abajo, luego los cordones o banda elástica de arriba y por último quítese la máscara o respirador</li> <li>■ Arrójela en el recipiente de desechos</li> </ul>
<p>PERFORM HAND HYGIENE IMMEDIATELY AFTER REMOVING ALL PPE</p>	<p>EFFECTÚE LA HIGIENE DE LAS MANOS INMEDIATAMENTE DESPUÉS DE QUITARSE CUALQUIER EQUIPO DE PROTECCIÓN PERSONAL</p>



Appendix 4: Special Airborne Isolation Sign

The sign is yellow with red text and symbols. At the top, there are two red octagonal signs: one with the word "STOP" and one with the word "ALTO". In the center, the text "SPECIAL AIRBORNE/CONTACT PRECAUTION" is written in large, bold, red capital letters. Below this, a red italicized line of text reads "Visitors, including family, must not enter—report to Nursing Station." Underneath, the heading "HEALTH CARE WORKERS MUST WEAR" is underlined in bold black text. This is followed by a bulleted list of PPE requirements: N95 Respirator (prior fit test required), Gloves, Gown, and Protective eyewear (with a note that goggles must be worn for aerosol-generating procedures). A reminder in bold black text states that hand hygiene must be performed before entering and after leaving the room. At the bottom of the sign, there is a horizontal line, followed by the heading "PRECAUCIONES ESPECIALES CONTACTO AÉREO" in bold red text. Below this is a red italicized line of text: "Visitantes tienen que reportarse en la estación de enfermeras antes de entrar a este cuarto." This is followed by the underlined heading "Antes De Entrar A Esta Habitación Tiene Que Usar Los Siguientes Artículos De Protección Personal:" and another bulleted list of PPE requirements: Respirador N95 (es necesaria prueba de ajuste), Guantes, Bata, and Protección para los ojos (with a note that eye protectors must be worn for aerosol procedures). A reminder in bold black text states that hands must be washed before entering and after leaving the room. At the very bottom, a red italicized line of text provides contact information for Hospital Epidemiology and Infection Control.

(Front)

## **SPECIAL Airborne/Contact Precautions**

1. **Contact Precautions** consist of gloves, gowns, and eyewear – should be placed prior to entering room.
2. **Airborne Precautions** consist of placing patient in a room that meets airborne isolation requirements (private room, negative pressure, air exhausted directly to the outside,  $\geq 6$  air exchanges per hour). Personnel should wear an N95 respirator.
3. **Protocol for entering room**
  - a. N95 respirator (prior fit test clearance and instructions on respirator use)
  - b. Gloves
  - c. Gown
  - d. Protective eyewear
    - 1) Mask with face shield worn over N95 respirator OR
    - 2) Goggles for cough producing procedures
  - e. Surgical hood (optional)
  - f. Surgical booties (optional)
4. **Protocol for Removal of Isolation Garments**

Protective garments should be removed immediately after exiting the isolation room in the anteroom. If the isolation room does not have an anteroom, remove PPE (**except for respirator**) at the door just prior to exit. Remove respirator after leaving patient room and closing door. All disposable garments should be discarded or immediately after removal and not reused. **Perform hand hygiene immediately after removing all PPE.**

  - a. **Gloves** Outside of gloves is contaminated!
    - Grasp outside of glove with opposite gloved hand; peel off
    - Hold removed glove in gloved hand
    - Slide fingers of ungloved hand under remaining glove at wrist
    - Peel glove off over first glove
    - Discard glove in waste container
    - Perform hand hygiene immediately after removing gloves
  - b. **Goggles or face shield** Outside of goggles or face shield is contaminated!
    - To remove, handle by headband or ear pieces
    - Place in designated receptacle for reprocessing or in waste container
  - c. **Gown** The front and sleeves of the gown are contaminated!
    - Unfasten ties
    - Pull away from neck and shoulders, touching inside of gown only
    - Turn gown inside out
    - Fold or roll into a bundle and discard
  - d. **Respirator** Front of mask/respirator is contaminated- DO NOT TOUCH!
    - Grasp bottom, then top ties or elastics and remove
    - Discard in waste container
    - Perform hand hygiene immediately after removing respirator

**Decontaminate goggles** (if worn) by wiping exterior surface with alcohol or Vesphene.

Signs describing the protocol for entering and leaving the room will be placed on the inside and outside of the door. A **log** will be maintained of all persons entering the room.

**Minimize intra-hospital transport of patients.** When patient is being transported for essential diagnostic tests or from clinic/ED to hospital room have **patient wear a surgical mask**. Always notify recipient area prior to patient transport. When transporting patients, identify a path segregated from the main traffic routes as much as possible. Ventilators used for patient transport must use bacterial/viral filters on the exhalation valves.

**Transporters** should wear N95 respirator, gloves, gowns, and eye protection. Laboratory specimens will be hand carried to the laboratory (i.e., use of the tube system is prohibited).

**Visitors will be excluded from visiting.**

An exception to the **No Visitation Rule** (e.g., guardians of minor children, significant others such as spouse, brother/sister) can be made by the State Epidemiologist or the Medical Director, Hospital Epidemiology.

If visitation is approved, visitors will follow these guidelines:

- No more than 2 allowed
- Free of signs/symptoms illness (i.e., no fever, cough)
- Limited to 2 hours stay per visit

(BACK)

