Pandemic Influenza: Clinical and Public Health Guidelines for the Military Health System

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INTRODUCTION

The Military Health System must be prepared to rapidly evaluate and effectively manage patients with suspected or confirmed pandemic influenza throughout the entire range of military operations and health care settings. In addition to providing health care, efforts must limit the spread of disease among servicemembers, their families, local communities, and the workplace. These guidelines represent a recommended approach for the Military Health System with respect to patient evaluation and management, laboratory planning and diagnostics, occupational safety and health for healthcare and medical research personnel, community disease containment, and patient care/transport during military deployments.

These guidelines are based upon pandemic influenza clinical guidelines published by the Department of Health and Human Services, as well as advice from subject matter experts throughout the Department of Defense and other federal agencies. Target audiences include clinicians, laboratory workers, and other health care personnel; medical planners; public health emergency officers (PHEOs); as well as commanders and senior leaders.

These clinical guidelines use the pandemic influenza staging construct established in the "National Strategy for Pandemic Influenza – Implementation Plan" (May 2006). Other phasing constructs may be used for planning purposes (e.g., Joint Planning and Execution System, World Health Organization, etc), but these must be synchronized with the new Federal Government Response Stages described in the National Strategy for Pandemic Influenza – Implementation Plan.

This guidance supersedes the Department of Defense Influenza Pandemic Preparation and Response Health Policy Guidance (January 25, 2005), Appendix 1 (Sections IV, V, VI, VII, and VIII), Appendix 2, and Appendix 3.

These guidelines are posted on the DoD Pandemic Influenza Watchboard at www.dod.mil/pandemicflu. Updates to the guidelines will be made and posted as necessary to the website, including any change in standards of clinical practice, likely pandemic strain candidate(s) and laboratory diagnostics, case definitions, recommended infection control practices and personal protection equipment, etc.

I. Guidelines for Patient Evaluation and Management (E&M)

A. Federal Government Response Stages 0-2 (WHO Phases 1-5)

1. Evaluation of Patients with Influenza-like Illness (ILI)

Early identification of cases of pandemic influenza (PI) may help slow the spread of influenza within a community, as well as benefit the individual patient. Rapid initiation of treatment resulting from early identification can avert potentially severe complications.

During these stages, human infections with suspected PI will be an uncommon cause of ILI; therefore, both clinical and epidemiologic criteria associated with novel influenza virus infection risk should be met before such a cause is considered or investigated.

In individuals with a high risk of exposure, epidemiologic criteria may be sufficient to initiate further diagnostic measures even if clinical criteria are not fully met.

All suspected, presumptive positive, or confirmed cases of PI shall be reported to the respective military installation/command Public Health Emergency Officer (PHEO). The PHEO will then notify, through established reporting channels, the appropriate chain-of-command, the Centers for Disease Control and Prevention (CDC), State/local government public health agencies, and host nations if OCONUS (subject to Status of Forces Agreement or other international agreements). Emergency health powers, including restriction of movement (e.g., isolation and quarantine) and use of other disease containment strategies (e.g., social distancing to include telecommuting, snow days, mission essential personnel only, shelter-in-place, etc.) may be exercised by the installation/military commander in consultation with the PHEO.

In addition for being responsible for the evaluation, diagnosis, and treatment of suspected/confirmed PI cases, clinicians shall assist PHEOs with the identification of potentially exposed contacts. In general, individuals are considered at risk when they are in close contact with a case at any time beginning 24-48 hours before the onset of illness and up to 5 days after the onset of symptoms in adults and the duration of illness for children and immunocompromised patients. Close contacts might include household and social contacts, family members, workplace or school contacts, fellow travelers, and/or healthcare personnel.

a. Epidemiologic Criteria

(1) The maximum interval between possible exposure and symptom onset is set at 10 days.

(2) Exposure risk (Travel). Individuals have a travel risk if they have:

(a) recently visited or lived in a geographic area affected by highly pathogenic avian influenza (HPAI) outbreaks in domestic poultry or where a human case of novel influenza virus infection has been confirmed (for a regularly updated listing of affected countries, see the Office International des Epizooties web site at

http://www.oie.int/eng/en_index.htm and the World Health Organization (WHO) web site at http://www.who.int/en/) and either

(b) had direct contact with poultry in high risk areas, or

(c) had close contact with an individual with confirmed or suspected novel influenza virus infection.

(3) Exposure risk (Occupational). Individuals have an occupational risk if they:

(a) work on farms or in live poultry markets or process/handle poultry infected with known or suspected HPAI viruses or in high-risk geographic areas,

(b) work in laboratories that contain live animal or novel influenza viruses,

(c) are healthcare personnel or others in direct contact with a suspected or confirmed case of PI, or

(d) are involved in culling operations.

(4) **Direct contact** with poultry is defined as:

(a) touching birds (well-appearing, sick, or dead),

(b) touching surfaces contaminated with feces, fluids and secretions, or

(c) consuming uncooked or partially cooked products (including blood).

(5) **Close contact** with an individual from an affected area with confirmed or suspected PI is "within 3-6 feet of that individual during the illness."

(6) Human influenza viruses circulate worldwide and year-round, including in countries with outbreaks of HPAI among poultry. Human influenza virus infection can be a cause of ILI among returned travelers at any time of the year, including during the summer in the United States. This includes travelers returning from areas affected by poultry outbreaks of HPAI. Until efficient and sustained human-to-human transmission occurs, such individuals are more likely to be infected with seasonal influenza viruses than with HPAI viruses. Nevertheless, given the morbidity and mortality of the HPAI viruses in humans, the lack of an effective vaccine, and the need to delay entry of novel influenza viruses capable of human–to-human transmission (of any level of efficiency of spread) into the United States, a heightened index of suspicion should be maintained for these viruses during Federal Government Response Stage 2.

(7) A strong link to any AI outbreak in poultry may raise the index of suspicion for human infection with avian influenza A viruses.

(8) The DoD PI Watchboard at www.dod.mil/pandemicflu provides updated epidemiological information regarding the above.

b. Clinical Criteria

(1) Clinicians should maintain awareness of the most current CDC case definitions by frequently checking the DoD PI Watchboard at www.dod.mil/pandemicflu.

(2) Any suspected cases of human infection with PI must meet the clinical criteria for ILI (i.e., temperature of > 100.4°F (>38°C), plus either sore throat or cough or dyspnea.

(3) PI-specific laboratory evaluation for novel influenza viruses during Federal Government Response Stages 0-2 is recommended only for:

(a) Hospitalized patients with severe ILI, including pneumonia, who meet the above epidemiologic criteria,

(b) Non-hospitalized patients with ILI and with strong epidemiologic suspicion of novel influenza virus exposure,

(c) A patient with mild or atypical disease (hospitalized or ambulatory) who has one of the exposures listed above, or

(d) A patient with severe or fatal respiratory disease whose epidemiologic information is uncertain, unavailable, or otherwise suspicious but does not meet the epidemiologic criteria above.

(4) For influenza H5N1 diagnosis, available data indicate that oropharyngeal swab specimens and lower respiratory tract specimens (e.g., bronchoalveolar lavage or tracheal aspirates) are the preferred specimens because they appear to contain the highest quantity of virus; however, the ability to detect other novel influenza virus infections must also be considered. Therefore, all of the following respiratory specimens should be collected for novel influenza virus testing, if feasible: nasopharyngeal wash/aspirate (generally preferred) or swab; throat swab, and endotracheal aspirate (for intubated patients). See also Section III - Guidelines for Collection of Clinical Specimens.

(5) Alternative diagnoses should be entertained based only on laboratory tests with high positive predictive value (e.g., blood culture, viral culture, Polymerase Chain Reaction (PCR), *Legionella* Direct Flourescent Antibody (DFA) or urinary antigen, pleural fluid culture, endotracheal aspirate or sputum Gram stain and culture, Acid Fast Bacilli (AFB) smear and culture). If an alternate etiology is identified, the possibility of co-infection with a PI virus may still be considered if there is a strong epidemiologic link to exposure.

(6) If PI laboratory testing results are negative and no alternate diagnosis is established, but the clinical and epidemiologic suspicion remains high, clinicians should consider continuing PI-directed management as described below.

(7) If PI laboratory testing results are negative and an alternative diagnosis is established using a test with a high positive-predictive value, PI-specific

isolation precautions (see I.A.2.a(3) below - Infection Control Practices during the Federal Government Response Stages 0-2) and antiviral drug therapy may be discontinued. This decision should be based upon the absence of a strong epidemiologic link and an explanation of clinical manifestations by the alternative diagnosis.

2. Management of Patients with suspected Pandemic Influenza

a. Hospitalization (Inpatient)

The decision to hospitalize a patient is based upon clinical and epidemiological criteria and whether adequate precautions can be taken at the place of residence to prevent the potential spread of infection. In addition to the use of antivirals, clinical management of severe influenza should address prevention of complications, supportive care, and the rapid identification and treatment of secondary complications (see below). To minimize the spread of disease, restrictive visitor policies will be needed.

(1) Admission and Referral Criteria during the Federal Government Response Stages 0-2: Patients who meet both epidemiological and clinical criteria above must be admitted for evaluation, treatment, and isolation; otherwise, follow standard practice guidelines for hospital admission. Patients in non-traditional or congregate settings (e.g., operational settings, barracks, afloat platforms, etc.) who meet either epidemiological or clinical criteria can be considered for admission to prevent potential spread of disease and provide supportive care.

(2) Work-up during the Federal Government Response Stages 0–2: PI viruses may cause different clinical syndromes than seasonal influenza. For instance, seasonal influenza-related complications more commonly affect those at the extremes of age, whereas previous pandemics resulted in disproportionate morbidity and mortality in young and previously healthy adults. However, the characteristic clinical features of the next influenza pandemic cannot be predicted. While it is reasonable to assume that most affected individuals will have the typical features of influenza (e.g., fever, respiratory symptoms, myalgia, and malaise), past pandemics have varied considerably with regard to severity and associated complications.

(a) Fevers are often higher in children and can lead to febrile seizures. Gastrointestinal manifestations (e.g., vomiting, abdominal pain, and diarrhea) occur more frequently in children. Fever or apnea without other respiratory symptoms might be the only manifestations in young children, particularly in neonates.

(b) The comprehensive work-up for patients who meet both the clinical and epidemiological criteria should include a PI-specific diagnostic assay (e.g., a Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) for H5 cleared by the Food and Drug Administration). For influenza H5N1 diagnosis, available data indicate that oropharyngeal swab specimens and lower respiratory tract specimens (e.g., bronchoalveolar lavage or

tracheal aspirates) are the preferred specimens because they appear to contain the highest quantity of virus; however, the ability to detect other novel influenza virus infections must also be considered. Therefore, all of the following respiratory specimens should be collected for pandemic virus testing, if feasible: nasopharyngeal wash/aspirate (generally preferred) or swab; throat swab, and for intubated patients, endotracheal aspirate. (Viral culture of specimens from suspected cases of infection with a novel influenza virus should be attempted only in laboratories that meet the biocontainment conditions for biosafety level 3 (BSL-3) with enhancements or higher.) See Section II (Guidelines for Laboratory Diagnostics) regarding laboratory diagnostics testing flow and Section III (Guidelines for Collection of Clinical Specimens) regarding collection of specimens.

(c) Additional work-up should be guided by clinical indications and may include:

- Tests for other common viral respiratory pathogens (e.g., immunoflourescent antibody testing or PCR for Respiratory Syncytial Virus (RSV), Adenovirus, Parainfluenza, etc.), blood cultures, sputum or endotracheal aspirate Gram stain and culture and, in adults with radiographic evidence of pneumonia, *Legionella* DFA or urinary antigen and pneumococcal urinary antigen testing, in order to rule out alternative diagnoses or secondary bacterial infection in patients. (If alternate etiology is identified, the possibility of co-infection with a novel influenza virus may still be considered if there is a strong epidemiological link to exposure to a novel influenza virus.)
- Pulse oximetry, chest radiograph, complete blood count with differential, and serum chemistries.
- Acute and convalescent sera for future testing. (Note: Confirm the capability of the supporting laboratory to store serum specimens long-term before collection of such specimens is initiated).

(3) Infection Control Practices during the Federal Government Response Stages 0-2

(a) The epidemiologic pattern observed for PI is generally consistent with spread through close contact (i.e., exposure to large respiratory droplets, direct contact, or near-range exposure to airborne aerosols).

(b) Isolate infected individuals (i.e., confine patients to a defined area as appropriate for the healthcare setting).

(c) Limit the contact of nonessential health care personnel (as defined by the medical treatment facility (MTF)) and other individuals (e.g., social visitors) with patients who are ill with PI. Establish a group of clinical and non-clinical healthcare staff prepared to take care of PI patients –

ensure this group is adequately educated and provided with appropriate prophylaxis.

(d) Schedule procedures/appointments of symptomatic patients at end-of-day or in a cohort limited to those with like symptoms.

(e) It may be beneficial to maintain spatial separation in all common areas (i.e., sit or stand as far away as possible—at least 3-6 feet—from possibly infectious individuals) to limit contact between symptomatic and non-symptomatic individuals.

(f) Respiratory hygiene/cough etiquette:

- Enforce use of surgical masks by symptomatic individuals in common areas (e.g., waiting rooms in physician offices or emergency departments) and when being transported (e.g., in emergency vehicles, within Military Treatment Facilities (MTFs).
- Educate healthcare facility staff, patients, and visitors on the importance of containing respiratory secretions to help prevent the transmission of influenza and other respiratory viruses. Post signs that promote respiratory hygiene/cough etiquette in common areas (e.g., elevators, waiting areas, cafeterias, lavatories) where they can serve as reminders to all individuals in the healthcare facility.

(g) Patients with confirmed positive, presumptive positive or suspected PI should be placed on Pandemic Influenza Precautions (PIP – see the following paragraph) in addition to Standard Precautions for a minimum of 5 days from the onset of symptoms. Because children and immunocompromised patients may shed virus for longer periods, they may be placed on PIP for the duration of their illness.

(h) Pandemic Influenza Precautions (PIP) are defined as:

- Negative pressure isolation is not required for routine patient care of individuals with PI. If possible, airborne infection isolation rooms should be used when performing high-risk aerosol-generating procedures. If work flow, timing, resources, availability, or other factors prevent the use of airborne infection isolation rooms, it is prudent to conduct these activities in a private room (with the door closed) or other enclosed area, if possible, and to limit personnel in the room to the minimum number necessary to perform the procedure properly.
- Minimal personal protective equipment (PPE) recommended to enter any patient room/area includes:
  - National Institute for Occupational Safety and Health (NIOSH)-certified disposable or reusable N-95 (or higher) filtering face piece respirators. Fit-testing is required prior to respirator use. Discard respirators when exiting patient room/area. If necessary, a disposable N-95 respirator can be

reused by the same individual with the following precautions: (1) a protective covering such as a medical mask or a clear plastic face shield should be worn over the respirator to protect it from surface contamination; (2) the respirator should be carefully stored between uses; and (3) wearer should wash his/her hands before and after handling the respirator and the device used to shield it. Use surgical masks when N-95 respirators (or higher) are unavailable. Discard masks when exiting patient room/area.

- A loose-fitting powered air-purifying respirator may be used if fit-testing is not possible (for example, if the individual has a beard).
- Eye protection (goggles or face-shield) when within six feet of the patient(s)
- Gloves and hand hygiene. Hand hygiene includes both hand washing with either plain or antimicrobial soap and water or use of alcohol-based products (gels, rinses, or foams). Use alcohol-based products containing an emollient that does not require the use of water only if hands are not visibly soiled.
- Fluid resistant gowns if exposure to body fluids anticipated. Procedures such as intubations and activities that involve holding the patient close (e.g., pediatric settings) are examples of when a gown may be needed when caring for PI patients. A disposable gown made of synthetic fiber or a washable cloth gown may be used. Gowns should be worn only once and then placed in a waste or laundry receptacle, as appropriate, and hand hygiene performed.

- Use of N-95 respirators also is recommended for health care personnel during other direct patient care activities (e.g., examination, bathing, feeding) and for support staff who may have direct contact with PI patients. If N-95 (or higher) respirators are not available, surgical masks can provide benefit against large droplet exposure and should be worn for all health care activities involving patients with confirmed or suspected PI.
- FDA-cleared surgical N-95 respirator (or higher) with eye protection, or full face-shields with the N-95 disposable respirator, must be worn during the performance of any aerosol-generating procedures (e.g., endotracheal intubations, suctioning, nebulizer treatment, bronchoscopy, etc.) or where there is potential exposure to blood and bodily fluids.
- If PI patients are cohorted in a common area or in several rooms on a nursing unit or field location, it may be practical to wear one mask for the duration of the activity; however, other PPE (e.g., gloves,

gown) must be removed between patients and hand hygiene performed. Change masks or respirators when they become moist, damaged, contaminated, or if breathing becomes difficult. Do not wear masks or respirators dangling around neck.

- If feasible, use dedicated equipment such as stethoscopes, disposable blood pressure cuffs, disposable thermometers, etc.
- There are no special guidelines under PIP for the management of regulated medical waste or trash; soiled linen and laundry; dishes and eating utensils; environmental cleaning and disinfection; or for postmortem care. Follow facility-specific procedures and/or local or State regulations.
- Single use patient care items are recommended when possible.
- Reusable devices should be appropriately cleaned with a hospital-approved disinfectant that is EPA-approved before removing it from the patient room.
- High-touch surfaces will need to be cleaned more frequently throughout the day to reduce the risk of indirect transmission.

(i) Begin to plan for shortages of personnel and logistical support during the pandemic period (e.g., inadequate staffing, housekeeping support, over-flowing linen/trash, food services, mortuary care, and other services/supplies).

(j) Establish an "alternative site" location for all high-risk patients (e.g., immunocompromised, pregnant women, etc.) for their healthcare during escalation of the pandemic phase.

(4) Use of antivirals during the Federal Government Response Stages 0-2:

(a) Although it is DoD policy to adhere to CDC recommendations regarding use of antivirals for pandemic influenza (see http://www.cdc.gov/flu/professionals/treatment/ and http://www.pandemicflu.gov/vaccine/index.html) there are operational considerations that supersede the CDC recommendations. Refer to the appropriate section of the DoD PI Watchboard at www.dod.mil/pandemicflu for these exceptions.

(b) Antiviral treatment doses should be initiated in patients who meet both epidemiological and clinical criteria for PI. Such treatment should be initiated as early as possible and targeted to patients who ideally present within 48 hours of symptom onset. Treatment should be continued with positive laboratory confirmation. If laboratory tests are negative but high clinical and epidemiological suspicion remains, treatment should be continued. If laboratory tests are negative and an alternative diagnosis is established, treatment should be discontinued.

(c) Coordinate with installation/command PHEO and local public health authorities in considering whether it is necessary and feasible to trace a patient's close contacts (e.g., household contacts, healthcare personnel, workmates, fellow passengers) and provide them with post-exposure antiviral prophylaxis (duration generally consists of at least 10 days.)

(d) Because the supply of antivirals may be limited, and the development of resistance is likely to increase with overuse, criteria for antiviral use should be enforced by the MTF (e.g., Pharmacy and Therapeutics Committee, Infectious Diseases Department use authorization, etc.).

(e) Serious adverse events associated with the use of antiviral drugs for prophylaxis and treatment of influenza should be reported to the MTF Pharmacy and Therapeutics committee and to the Food and Drug Administration using the MedWatch monitoring program.

(5) Complications of influenza during the Federal Government Response Stages 0-2

(a) Patients may present with primary viral pneumonia, often with Acute Respiratory Distress Syndrome. Primary influenza pneumonia usually begins abruptly, with rapid progression to severe pulmonary disease within 1 - 4 days. Recovery may take 1 - 2 weeks or longer.

(b) Exacerbations of underlying chronic diseases are among the most common serious complications of influenza. Complications are frequently related to co-morbid conditions, especially cardiac and respiratory disease. Typical influenza symptoms might be brief or minimal compared to the exacerbation of the underlying disease, particularly in the elderly. Other complications of influenza may include:

- systemic inflammatory response syndrome
- toxic shock syndrome without bacterial co-infection
- bronchiolitis, laryngotracheobronchitis, and otitis media (in children)
- peri- and myocarditis, coronary vasculitis, and arrhythmia
- myositis that can progress to rhabdomyolysis and renal failure in some cases.
- Reyes Syndrome
- febrile seizures (in children)
- encephalopathy
- Guillain-Barre Syndrome and transverse myelitis

- gastrointestinal manifestations (seen currently in infection with H5N1) including transient hepatic inflammation in rare circumstances.
- bacterial sinusitis

(c) Secondary bacterial pneumonia occurs frequently and is characterized by an initial improvement in influenza symptoms over the first few days followed by a return of fever, along with a productive cough and pleuritic chest pain. Findings include lobar consolidation on chest x-ray and sputum smears positive for leukocytes and bacteria. The most commonly isolated pathogens are *Streptococcus pneumoniae, Staphylococcus aureus, Streptococcus pyogenes,* and *Haemophilus influenzae*. *S. aureus* also can present as a concurrent pneumonia with influenza.

(d) Use extended spectrum macrolides and fluoroquinolones to treat community- acquired pneumonias (CAP). Doxycycline, amoxicillin/clavulanate, and 3rd generation cephalosporins such as ceftriaxone are alternative agents that have reasonable activity against *S. pneumoniae*, *S. pyogenes, S. aureus,* and *H. influenzae*. *S. aureus* (including community-acquired and healthcare-acquired methicillin-resistant *S. aureus* or MRSA) and *H. influenzae* can also be treated with trimethoprim-sulfamethoxazole.

(e) In order to reduce the incidence of post-influenza secondary bacterial infections, maximize vaccination against *S. pneumoniae, Neisseria meningitidis,* and *H. influenzae* in accordance with the current CDC Advisory Committee on Immunization Practice (ACIP) guidelines and Service immunization regulations.[1]

(f) Sepsis caused by invasive coinfection with *S. aureus*, including Methicillin Resistant S. aureus (MRSA), or other bacteria, such as *N. meningitidis,* has been reported. Antibiotic therapy for these infections should be guided by local resistance patterns.

(g) Prevent healthcare-associated infections (HAIs) by strict adherence to infection prevention and control practices. Antibiotic therapy for HAIs should be guided by local resistance patterns.

b. Hospitalization (Intensive Care Unit)

Follow local MTF policy regarding admission and discharge criteria, patient care, and support.

c. Outpatient/Home/Congregate Housing

Patients who meet epidemiological criteria, but not the clinical criteria above, can be sent home. The MTFs shall develop a system to track and follow up

[1] Air Force Joint Instruction 48-110; Army Regulation 40-562; BUMEDINST 6230.15; Coast Guard COMDTINST M6230.4E.

these patients within 24 hours. Those patients in non-traditional or congregate settings (e.g., barracks, deployed settings) may be considered for admission. If patients develop symptoms consistent with clinical criteria, they should be instructed to limit exposure to others and to immediately contact their provider for instructions regarding prompt referral and evaluation. MTFs shall establish 24/7 systems to receive incoming calls and provide telephonic consultation (e.g., command duty desk, nurse advice line, etc.).

(1) Infection Control Practices

(a) Physically separate the patient with influenza from non-ill individuals living in the home as much as possible, preferably in a separate room with a designated primary caregiver.

(b) When care is provided by a household member, basic infection control practices must be emphasized (e.g., segregating the ill patient, hand hygiene, and cough etiquette). Infection within the household may be minimized if a primary caregiver is designated (ideally this should be someone who does not have an underlying condition that places them at increased risk of severe influenza disease).

(c) Patients should not leave the home during the period when they are most likely to be infectious to others (i.e., for 5 days after onset of symptoms or for the duration of entire illness for children and immunocompromised individuals). When movement outside the home is necessary (e.g., for medical care), the patient should follow cough etiquette (i.e., cover the mouth and nose when coughing and sneezing) and wear a surgical mask if available. Whenever possible, maintain a safe distance (> than 3-6 feet) from others.

(d) Scrupulous attention to hand hygiene is required after direct or indirect contact with an influenza patient, their belongings/equipment, or the environment in which care is provided. Hand hygiene includes both hand washing with either plain or antimicrobial soap and water or use of alcohol-based products (gels, rinses, foams) containing an emollient that do not require the use of water if hands are not visibly soiled.

(e) Dishes or utensils should not be reused without cleaning. Soiled dishes and eating utensils can be washed together in a dishwasher or by hand with hot water and soap. Separation of eating utensils for use by a patient with influenza is not necessary.

(f) Laundry can be washed in a standard washing machine with warm or cold water and detergent. Use of a mechanical dryer is preferred. It is not necessary to separate soiled linen and laundry used by a patient with influenza from other household laundry. Hand hygiene should be performed after handling soiled laundry.

(g) Tissues used by the ill patient should be placed in a bag and disposed with other household waste. Consider placing a bag for this purpose at the bedside.

(h) Perform routine cleaning of environmental surfaces in the home with a household disinfectant. Pay special attention to frequently touched surfaces (e.g., banisters, door-knobs, telephones, keyboards, etc.)

(i) Although no studies have assessed the use of masks at home to decrease the spread of infection, use of surgical masks by the patient and/or caregiver during interactions may be of benefit. The wearing of gloves and gowns is not recommended for household members providing care in the home.

(2) Use of antivirals and other medications (see Section I.A.2.a(4)).

B. Federal Government Response Stages 3-6 (WHO Phase 6)

1. Evaluation of Patients with ILI

During the Pandemic Period, the primary goal is to rapidly triage and identify cases of PI. During this period, MTFs may be overwhelmed with suspected cases, restricting the time and laboratory resources available for evaluation. Evaluation will therefore focus predominantly on clinical and general laboratory findings, with less emphasis on specific viral laboratory diagnostic testing and epidemiologic criteria. All suspected, presumptive positive, or confirmed cases of PI shall be reported to the respective military installation/command PHEO. The PHEO will then notify, through established reporting channels, the appropriate chain-of-command, the CDC, State/local government public health agencies, and host nations if OCONUS (subject to Status of Forces Agreement or other international agreements). The installation/military commander in consultation with the PHEO may exercise emergency health powers, including restriction of movement (e.g., isolation and quarantine) and use of other disease containment strategies (e.g., social distancing, snow days, mission essential personnel only, shelter-in-place, etc.).

a. Epidemiologic Criteria

(1) During the Federal Government Response Stages 3-6, an exposure history will be marginally useful for clinical management when disease is widespread in a community. There will be a relatively high likelihood that any case of ILI during that time period will be PI. Clinical criteria will be sufficient for classifying the patient as a presumptive case of PI.

(2) Clinicians in communities without PI activity should question suspect cases about recent travel from a community with PI activity or close contact with a suspected or confirmed PI case.

(3) Clinicians should maintain awareness of the most current CDC case definitions by frequently checking the DoD PI Watchboard at www.dod.mil/pandemicflu

b. Clinical Criteria. See I.B.1.a above

2. Management of Patients with PI during the Federal Government Response Stages 3-6

a. Hospitalization (Inpatient)

(1) Admission and Referral Criteria during the Federal Government Response Stages 3-6: Once a pandemic is underway, hospital admission of patients may be limited to those with severe complications who cannot be cared for outside the hospital setting. The decision to hospitalize a patient will be based on the physician's clinical assessment of the patient, as well as the availability of hospital resources and personnel, as well as alternate care facilities. Providers may be required to triage patients and consider limiting the number of admissions and reserving inpatient beds for those most likely to benefit from admission. (For more on this topic, please consult the U.S. Department of Health and Human Services Publication, "Providing Mass Medical Care with Scarce Resources: A Community Planning Guide" at http://www.ahrq.gov/research/mce/.) Clinical management of severe influenza should address supportive care and the rapid identification and treatment of secondary complications. Restrictive visitor policies will have to be invoked to minimize disease spread.

(2) Work-up during the Federal Government Response Stages 3-6: During a pandemic, a comprehensive work-up may not be indicated for all patients. The work-up (see above work-up during the Federal Government Response Stages 0-2, I.A.1.b.) should be guided by clinical indications, epidemiological findings, and resource constraints.

(a) Respiratory specimens may be collected for surveillance purposes, including changes in viral prevalence and characterization of emerging antiviral resistance patterns, as directed by DoD.

(b) Diagnostic testing to confirm PI might aid in the management of patients (to include cohorting, isolation, and quarantine decisions) at the beginning or end of a wave of a pandemic within a community, but may be optional or unnecessary in the setting of high local prevalence.

(3) Infection Control Practices. In addition to Federal Government Response Stages 0-2 recommendations (Section I.A.2.a(3))

(a) As the scope of a pandemic escalates, it may be beneficial to consider setting up a separate triage area for individuals presenting with symptoms of respiratory infection. Because not every patient presenting with symptoms will have PI, strict attention to respiratory hygiene/cough etiquette, as well as use of surgical masks on patients with respiratory symptoms, will be important in preventing further spread.

(b) To the extent possible, both clinical (e.g., physicians, nurses, respiratory therapists, etc.) and non-clinical personnel assigned to cohorted patient care units designated for PI patients should be dedicated for this purpose and should not "float" or otherwise be assigned to other patient care

areas for the duration of the pandemic phase. The number of personnel entering the cohorted area should be limited to those necessary for patient care and support.

(c) Differentiate truly symptomatic individuals requiring evaluation from "worried well" who should receive information regarding influenza transmission and symptoms.

(d) Limit patient movement and transport outside the isolation area to medically necessary purposes. If transport or movement is necessary, ensure that the patient wears a surgical mask. Patients and staff should perform hand hygiene before leaving the room.

(e) Once patients with PI are admitted to the hospital, surveillance should be heightened for evidence of transmission to other patients and healthcare personnel. (Once PI is firmly established in a community, this may not be feasible or necessary.)

(f) See Section IV (Occupational Health Guidelines for Health Care and Medical Research Personnel) for further infection control practice recommendations specific to healthcare personnel.

(g) Implement a plan for shortages of personnel and logistical support during the pandemic phase (e.g., inadequate staffing, housekeeping support, over-flowing linen/trash, food services, mortuary care and other services/supplies).

(h) Implement the plan for "alternative site" location for all high-risk patients (e.g., immunocompromised, pregnant women, etc.) for their healthcare during escalation of the early pandemic phase.

(4) Use of Antivirals during the Federal Government Response Stages 3-6:

(a) Available antivirals for treatment should be prioritized for patients with PI who present within 48 hours of onset of symptoms and who are more than one year old.

(b) There are currently no data on the effectiveness of treatment in severely ill patients. If available antiviral drug supplies are very limited, the priority of these patients could be reconsidered based upon the epidemiology of the pandemic and any additional data on effectiveness of antivirals in this population of patients.)

(c) If no pandemic vaccine is available, the use of antivirals for prophylaxis should be considered for all healthcare personnel with direct and regular contact with patients with PI and, in consultation with the PHEO, close contacts of PI cases, especially high-risk groups (e.g., pregnant women, immunocompromised individuals, barrack and ship mates, etc.).

(5) Complications of Influenza during the Federal Government Response Stages 3-6: In addition to Complications of Influenza during the Federal Government Response Stages 0-2 (I.A.2.a(5)),

(a) Aggressively identify and treat secondary bacterial infections as resources are available, and

(b) Expand existing inventory (stockpile) of formulary stores of medical countermeasures such as antibiotics and other critical medical materiel.

b. Hospitalization (Intensive Care Unit)

(1) Follow local MTF policy regarding critical care unit admission and discharge criteria, patient care, and support. Recognize that critical care beds/mechanical ventilators may become limited and judgments may be needed about using limited resources for patients with the best chances of survival. Effective use of critical care staff and resources will be necessary to achieve the greatest good for the most patients.

(2) The principles of antibiotic selection for patients with influenza-related pneumonia are similar to those for the management of sporadic CAP in general, except that adequate coverage for *S. aureus* and hospital-acquired pathogens should be included in any empirical regimen.

(3) Data are not available currently on the effectiveness of antivirals in treating severely ill patients with PI. If available antiviral drug supplies are very limited, the priority of these patients could be reconsidered based upon the epidemiology of the pandemic and any additional data on effectiveness of antivirals in this population of patients.

c. Outpatient/Home/Congregate Housing

(1) Infection Control Practices. See also Outpatient Infection Control Practices during Federal Government Response Stages 0-2 (I.A.2.c(1)).

(a) Visitors to a residence or domicile should be restricted if individuals in the household are ill with PI.

(b) Military installations/commands (including MTFs), local health authorities, and the CDC may recommend or enforce restriction of movement and social distancing strategies to decrease exposure to others.

(2) Use of Antivirals and other medications (see above Hospital-based Use of Antivirals and other medications).

II. Guidelines for Laboratory Planning and Diagnostics

A. General Information

1. Additional References

a. HA Policy 99-008, "Policy for DoD Global, Laboratory-Based Influenza Surveillance"

b. HHS "Pandemic Influenza Plan," November 2005

c. AFI 48-105, "Surveillance, Prevention, and Control of Diseases and Conditions of Public Health or Military Significance"

d. 42 CFR Part 72, "Interstate Shipment of Etiologic Agents" as amended in the *Federal Register*, March 18, 2005

e. 49 CFR Parts 171-178, Hazardous Materials Regulations

f. Domestic Mail Manual, Mailing Standard 601.10.17

g. International Air Transport Association (IATA) Dangerous Goods Regulations

h. 42 CFR Part 73, "Select Agents and Toxins" as amended in the *Federal Register*, March 18, 2005

i. 9 CFR Part 121, "Possession, Use, and Transfer of Select Agents and Toxins" as amended in the *Federal Register*, March 18, 2005

2. Surveillance and Diagnostic Testing Goals

a. Serve as an early warning system and detect increases in ILI at the local level.

b. Implement enhanced surveillance for detection of the first US cases of novel influenza virus infection.

c. Detect the introduction of the virus into local areas and communities.

d. Facilitate disease containment activities to delay spread within and between local areas and communities

e. Facilitate clinical treatment by distinguishing patients with influenza from those with other respiratory illnesses.

f. Monitor the clinical course of affected patients for changes in patterns of secondary bacterial infections.

g. Facilitate cohorting, if used within the medical treatment facility, of patients hospitalized with severe complications of a pandemic influenza infection.

h. Monitor changes in the pandemic virus, including development of antiviral resistance.

3. Laboratory Planning Guidance

a. Influenza A viruses other than the currently circulating H1 and H3 subtypes should be considered as potentially pandemic if detected in humans.

b. In an affected community, a pandemic outbreak will last about 6 to 8 weeks. At least two pandemic disease waves are likely.

(1) During a pandemic wave in a community, between 25% and 35% of individuals will become ill. Of those who become ill with influenza, approximately 50% will seek outpatient medical care.

(2) CDC models estimate an increase in hospitalization and intensive care unit demand of more than 25% even in a moderate pandemic.

(3) At the peak of the pandemic, significant numbers of the workforce (i.e., up to 40%) may be absent due to illness, caring for family members, or staying at home due to fear of becoming infected.

c. Enhanced surveillance will be conducted during the introduction, initial spread, and first waves of a pandemic.

(1) The most intense testing will be necessary during the early stages of a pandemic, when detecting the introduction of the virus into a state or community is the primary goal. Laboratory staff should anticipate shipping a much larger number of specimens in a very short time, especially during the early stages of a pandemic.

(2) Air Force Institute for Operational Health (AFIOH) designated sentinel sites must continue their participation in the DoD influenza surveillance program and ensure submission of surveillance specimens per AFIOH guidance.

d. Shortages of available staff may occur due to increased testing needs for ruling in/ruling out influenza caused by the H5N1 or other novel influenza virus (i.e., early in a Pandemic Period); an overall increase in laboratory workload in support of patient care related to secondary complications of PI (e.g., pneumonia, dehydration, and worsening of chronic lung and heart problems); increased mortality and the need for receipt, storage, and release of remains; and staff absences caused by influenza illness among the staff, family member care requirements, or a fear of continued exposure to the PI virus. Medical center laboratory operational capabilities, in particular, may be acutely affected due to their Laboratory Response Network (LRN) reference laboratory mission to provide surge-testing capacity within their geographic region. Possible accommodations for shortages of available staff due to increased workload requirements or personnel absences related to a PI outbreak include the following:

(1) Cross-train laboratory staff in the areas of the laboratory most likely to be impacted by surge and increased workload requirements.

(2) Determine the availability of support from local and State public health laboratories and Veterans Administration hospitals (if located nearby).

(3) Consider the curtailment and referral of non-critical testing to commercial reference laboratories.

e. Laboratory supplies for influenza diagnosis and PI surveillance, PPE, supplies for shipping specimens suspected of containing an infectious agent, and mortuary supplies may be rapidly depleted. The ability to replenish supplies may be limited due to a widespread need for such supplies. On-hand stockage levels of critical supplies and sources of replenishment supplies should be assessed for the ability to sustain necessary operations for a 6 - 8 week period. Trigger points for ordering extra supplies should be determined. Alternative sources of supplies, or the use of acceptable substitute items, should be considered, especially when other laboratories in the community use the same item(s) and source(s) of supply. Cross-leveling of critical supplies during a PI

outbreak across various levels of Command and/or Services may be required to meet DoD needs.

f. High mortality rates expected in a PI outbreak will most likely exceed the autopsy/morgue capabilities of DoD healthcare facilities and their surrounding communities. Emergency plans to expand autopsy/morgue capabilities should be reviewed to determine whether the plans currently in place would accommodate the increase in deaths anticipated should a PI outbreak occur.

g. Adherence to infection control and personal protective practices used in processing, testing, storing, and shipping specimens that may contain novel influenza viruses must be emphasized by laboratory management personnel. Upon the identification of an index case within the community, increased medical surveillance of laboratory personnel should be immediately implemented.

h. If a request for clinical laboratory testing support (i.e., a request for routine diagnostic support which is not LRN reference laboratory mission related) is received from a local civilian hospital's laboratory director or manager, the request should be referred through the chain of command to the appropriate level for consideration, IAW with DoDD 3025.1 and DoDD 3025.15. If the request for support is approved, related costs should be captured for reimbursement purposes.

4. Laboratory-based Influenza Surveillance Program

a. The Surgeon General of the Air Force is the Executive Agent for the DoD influenza surveillance program.

b. The AFIOH has management responsibility for the DoD influenza surveillance program and coordinates with Service representatives and with the DoD Global Emerging Infections Surveillance and Response System.

c. Any DoD medical treatment facility may participate; however, select sentinel sites are chosen according to their location and mission (i.e., potential for emergence of new strains, importation, future military operations, areas with high servicemember concentrations, and highly mobile/rapid response units). New sentinel sites are added at the discretion of the AFIOH.

d. All influenza isolates are typed as A or B and a portion are subtyped using hemagglutination inhibition or polymerase chain reaction procedures. A sample of these isolates also undergoes molecular sequencing. Select isolates and all sequence data are sent to the CDC for further subtyping and antigenic characterization.

e. Further information on the AFIOH's seasonal influenza surveillance program may be obtained from the program's web site: https://gumbo.brooks.af.mil/pestilence/Influenza/

5. General Influenza Testing Guidance

a. Laboratory Management Personnel

(1) A rapid antigen test capable of specifically identifying an influenza type A viral infection should be considered for addition to a laboratory's test menu if the rapid antigen test currently in use is not capable of such discrimination.

(2) The specific testing sites where rapid antigen testing is offered within medical treatment facilities must be reviewed by the Chief, Medical Staff (or designee) and Laboratory Director/Laboratory Manager to ensure rapid antigen testing is available at the appropriate sites to properly support the facility's PI plan. DoD Clinical Laboratory Improvement Program certificates for laboratories will be requested/modified as required according to the Armed Forces Institute of Pathology Pamphlet 40-24, "Technical Instructions for the DoD Clinical Laboratory Improvement Program."

(3) The sensitivity and specificity of any rapid antigen test offered should be reviewed with the medical staff to ensure the medical staff is knowledgeable concerning the positive and negative predictive values of the test method and the appropriate use of test results in determining patient care actions given the incidence of influenza in the community. False positive (and true negative) results are more likely to occur when disease prevalence in the community is low; false negative (and true positive) results are more likely to occur when disease prevalence in the community is high. An awareness of the current incidence of influenza in the community should be maintained so appropriate advice concerning interpretation of test results can be provided.

(4) As new laboratory tests for the identification of a PI virus(es) become available, comply with published DoD guidance on the implementation and use of these tests.

(5) Ensure that specimen collection/handling instructions for tests utilized for influenza diagnosis and/or surveillance are available to all healthcare personnel.

(6) If a specimen must be referred to a non-DoD LRN reference laboratory for further testing and sufficient specimen is available, split the patient specimen and maintain an aliquot of the specimen. The retained aliquot of the specimen will be stored under the conditions required to maintain specimen integrity.

(7) Ensure that personnel responsible for shipping specimens are trained on shipping procedures and maintain inventories of necessary supplies. An individual(s) trained and certified in shipment of infectious substances/etiologic agents must be available. (The individual(s) must be recertified every two years.) The US Army Center for Health Promotion and Preventive Medicine (USACHPPM) provides such training and certification ["Transport of Biomedical Materials" and "Transport of

Biomedical Materials (Refresher) On-line"], as may other Services or Agencies. Information on this training is provided on the USACHPPM web page at https://usachppm.apgea.army.mil/TrainCon/datePage.aspx.

(8) Confirm support capabilities, novel influenza virus testing capabilities, and referral arrangements with the nearest LRN reference laboratory. The nearest LRN reference laboratory may be a DoD facility or a local or State public health laboratory. DoD LRN reference/national laboratories have access to a LRN Lab Locator on the LRN's secure Web site. A listing of DoD laboratories that perform the FDA-cleared H5 Reverse Transcriptase Polymerase Chain Reaction assay is available on the DoD PI Watchboard at www.dod.mil/pandemicflu. A public link providing contact information for a state or local health department is available at www.bt.cdc.gov/lrn/contact.asp or

http://www.asm.org/ASM/files/LeftMarginHeaderList/DOWNLOADFILENAME/000000001204/BTtemplateRevised8-10-6.pdf#xml=http://search.asm.org/texis/search/pdfhi.txt?query=lab+emergency+contactsandpr=ASM+Siteandprox=pageandrorder=500andrprox=500andrdfreq=500andrwfreq=500andrlead=500andsufs=0andorder=randmode=andopts=andcq=andid=454ae16f8

(9) Sites in OCONUS remote locations should work with their respective Service Laboratory Consultant, Service LRN Gatekeeper, and/or DoD LRN Gatekeeper to identify alternative testing sites if specimens cannot be shipped to a DoD LRN reference laboratory within a reasonable time frame. Alternative influenza testing sites may include other OCONUS DoD non-LRN activities, World Health Organization-associated laboratories, or host nation laboratories.

(10) Emergency contact information for the installation/command PHEO and other local command designated points of contact must be readily available.

(11) Ensure points of contact for receiving and reporting results from LRN reference and/or national laboratories are identified and confirmed.

b. DoD LRN Reference/National Laboratories

(1) As coordinated/provided by the CDC or as developed in-house, establish novel influenza virus testing capability. Influenza A viruses other than the currently circulating H1 and H3 subtypes should be considered potentially pandemic if detected in humans. (Laboratory management personnel must ensure compliance with regulatory requirements regarding the use of non-FDA cleared or approved tests for patient care.)

(2) Accept specimens for testing for novel influenza virus subtypes from DoD and/or non-DoD laboratories IAW the LRN's mission.

(3) If a specimen must be referred to a non-DoD LRN reference/national laboratory for further testing and sufficient specimen is available, split the patient specimen and maintain an aliquot of the specimen. The retained

aliquot of the specimen will be stored under the conditions required to maintain specimen integrity.

(4) Ensure contact information, information on testing capabilities, and specimen collection and submission guidelines are available to its own health care provider staff and to DoD/non-DoD laboratories in the community or surrounding area that may submit specimens for analysis.

(5) Emergency contact information for the CDC (for use when needed to report patient case screening information, to consult regarding H5 RT-PCR assay results, or to coordinate the submission of specimens), the installation/command PHEO, and other local command-designated POCs must be readily available.

(6) The H5 RT-PCR assay-related performance questions and coordination for shipment of specimens should be referred to the point of contact identified in the LRN's H5 RT-PCR protocol. The CDC's on-call epidemiologist can be contacted for questions concerning a suspected PI case and also must be contacted before sending specimens to the CDC. The on-call epidemiologist can be contacted by calling 404-639-3747/3591, Monday – Friday, 8:30 AM – 5:00 PM, or through the CDC's Emergency Operations Center (770-488-7100) at all other times. A CDC case screening and report form (obtained from the Hotline or from Epi-X) that includes the CDC case ID number provided during the phone consultation must be completed by the appropriate hospital personnel (e.g., the PHEO, the patient's healthcare provider, other local command-designated POCs, and/or the laboratory POC, as necessary) and faxed to the CDC at 888-232-1322 with a cover sheet that says: "ATTN: Influenza case reporting." CDC staff will assist, as needed, in completing the form.

(7) Identify and confirm points of contact for reporting results to referring laboratories, and receiving and reporting results from other LRN reference and/or national laboratories.

B. Testing Flow and Reporting Procedures

1. Testing Flow – PI Virus Exposure Risk Factors Are Not Present

Routine diagnostic test procedures (e.g., rapid antigen test, viral culture, direct or indirect immunofluorescence antibody assays, and hemagglutination/hemagglutination inhibition tests) are performed as requested/required for patient care on patients without H5N1 or other novel influenza virus exposure risk factors (refer to Section I (Guidelines for Patient Evaluation and Management) for epidemiologic and clinical risk criteria). No change to normal operations.

2. Testing Flow – PI Virus Exposure Risk Factors Are Present

a. Heightened vigilance for ILI patients at increased risk of infection with H5N1 or other novel influenza viruses

The health care provider must ensure that appropriate supervisory personnel in the laboratory (e.g., the Chief, Lab Manager, or Non-Commissioned Officer-in-

charge (NCOIC) within the Department of Pathology/Laboratory, or the Chief, NCOIC, or civilian Supervisor within the Microbiology Section) are alerted regarding the submission of a specimen from a patient with PI exposure risk factors. Refer to Section I (Guidelines for Patient Evaluation and Management) for epidemiologic and clinical criteria which identify patients where PI-specific laboratory diagnostics are indicated.

b. Flow of testing for ILI patient with H5N1 or other novel influenza virus infection risk

(1) Rapid antigen test (testing may include, when available, an immunofluorescence assay performed on an original clinical sample) is requested and performed. Conduct testing under biosafety level 2 (BSL-2) biocontainment conditions using a Class II biological safety cabinet.

(2) Because the sensitivity of rapid antigen tests might not be optimal, laboratory management personnel should warn clinical providers that they should take the test's positive and negative predictive values into consideration when interpreting test results. A negative test result (especially by a rapid antigen test) might not rule out influenza and should not affect patient management or infection control decisions. False negative tests could result from suboptimal specimen collection conditions, viral shedding that is not detectable, or the sensitivity of the test.

(3) **DO NOT REFER SPECIMEN FOR VIRAL CULTURE.** Laboratories should not attempt to isolate influenza viruses from patients with a suspected novel influenza virus infection unless the laboratory meets the biocontainment conditions for BSL-3 with enhancements or higher. Specimens may be referred for routine viral culture (i.e., in laboratories without a BSL-3 with enhancements facility) only when negative H5N1 and/or other novel influenza virus test results are received from an LRN reference/national laboratory. Laboratory management personnel should alert healthcare providers of the existence of this restriction on viral culturing capabilities.

(a) **CAUTION:** H5N1 and other HPAI are classified as select agents by the U.S. Department of Agriculture (USDA). Do not perform, or refer specimens for, viral culture until a negative H5N1 (and/or other novel influenza virus) test result is received from an LRN reference/national laboratory unless the performing laboratory has Biosafety Level 3 (BSL-3) with enhancements, which include: all BSL-3 practices, procedures, and facilities plus controlled access double-door entry; the use of negative-pressure, HEPA-filtered respirators or positive air-purifying respirators; clothing change and personal showering protocols; and decontamination of all wastes.

(b) If an avian influenza strain – or a human virus variant that evolves from it – causes an influenza pandemic, it might become necessary to re-evaluate biocontainment requirements and select agent registration

requirements for laboratory testing. The CDC and the LRN will assist the USDA, as requested, in making such a decision.

(4) A negative rapid antigen influenza test result does not necessarily exclude human infection with either seasonal or novel influenza type viruses. A positive rapid antigen influenza test result could be a false positive or represent infection with either seasonal or novel influenza viruses. Therefore, both negative and positive rapid antigen influenza test (and immunofluorescence assay, if performed) results should be interpreted with caution, and reverse transcriptase polymerase chain reaction (RT-PCR) or other testing for H5N1 or other novel influenza viruses should be performed at the nearest LRN reference laboratory. If shipment of specimens is required, use guidelines for the shipment of specimens containing infectious/etiologic agents to prepare the specimen(s) for shipment.

(5) DoD LRN Reference Laboratories. Perform RT-PCR or other assays, if available, to identify the presence of H5N1 or other novel influenza viruses. Perform procedures in compliance with LRN protocol and safety guidance. The minimum biosafety level for DoD LRN reference laboratories is all BSL-2 requirements and the practice of BSL-3 safety procedures. Additionally, comply with the CAUTION provided in paragraph B.2.b above regarding referral for viral culture.

(a) The Influenza A/H5 (Asian Lineage) virus RT-PCR test developed by the CDC has received 510k clearance from the FDA and is intended for the in vitro qualitative detection of influenza A/H5 (Asian Lineage) virus RNA either directly in patient respiratory specimens or in viral cultures. **Positive PCR results should be considered "presumptive positive."** The definitive identification of Influenza A/H5 (Asian Lineage) requires additional laboratory testing, along with clinical and epidemiologic assessment in consultation with national influenza surveillance experts. Subsequent referral to the CDC for definitive confirmation may be facilitated by contacting CDC's on-call epidemiologist at 404-639-3747/3591 (Monday – Friday, 8:30 AM – 5:00 PM) or the CDC Emergency Operations Center at 770-488-7100 (all other times). This test is for specific identification of the Influenza H5 virus of Asian lineage and will not detect any other influenza virus subtypes, including the North American lineage influenza A/H5 viruses (e.g., avian H5N2 strains).

(b) Assays developed in the future by the CDC or other entities will be deployed to LRN reference/national or other laboratories either as a result of (1) an Emergency Use Authorization; (2) the filing of an Investigational Device Exemption with the FDA; or (3) as an FDA-cleared assay. The route used to clear distribution of the test will determine how the test and the results may be utilized. Specific guidelines regarding the use of the assay will be distributed by the CDC/FDA and relayed through LRN/Command channels.

(6) If the test result(s) is negative for the presence of H5 or other novel influenza virus, consultation with the local or State public health laboratory and/or CDC may be required if any concerns regarding the accuracy of the negative test result exist or to determine if referral for further testing is appropriate based on the epidemiological criteria and the inability, through appropriate laboratory tests, to verify an alternative diagnosis. If further evaluation is not deemed necessary, setup for routine viral culture (i.e., in laboratories without a BSL-3 with enhancements facility) may proceed, if requested or if reflex testing to viral culture is specified within the facility's institutional testing protocol.

(7) If the test result(s) is positive (considered "presumptive positive" if using the CDC-developed Influenza A/H5 (Asian Lineage) RT-PCR test; therefore, the test result must be confirmed at the CDC) for the presence of H5 or other novel influenza virus, the laboratory point of contact must immediately contact their installation's/command's PHEO and the CDC for guidance. The H5 RT-PCR assay-related performance questions and coordination for shipment of specimens should be referred to the POC identified in the LRN's H5 RT-PCR protocol. The CDC's on-call epidemiologist can be contacted for questions concerning a suspected PI case and also must be contacted before sending specimens to the CDC. The on-call epidemiologist can be contacted by calling 404-639-3747/3591, Monday – Friday, 8:30 AM – 5:00 PM, or through the CDC's Emergency Response Hotline (770-488-7100) at all other times. A CDC case screening and report form (obtained from the Hotline or from Epi-X) that includes the CDC case ID number provided during the phone consultation must be completed by the appropriate hospital personnel (i.e., the PHEO, the patient's healthcare provider, other local command-designated POCs, and/or the laboratory POC, as necessary) and faxed to the CDC at 888-232-1322 with a cover sheet that says: "ATTN: Influenza case reporting." CDC staff will assist, as needed, in completing the form.

(8) DoD LRN reference laboratories should also immediately report to the CDC any influenza cases that test positive for a novel influenza subtype (other than H5), or meet the enhanced surveillance case definition in effect at that time and cannot be subtyped because of the lack of appropriate reagents or biocontainment equipment.

c. Laboratory Actions

(1) Laboratories, per consultation with the supporting LRN reference laboratory and/or the CDC, should send original clinical specimens to the CDC if:

(a) A sample tested by the nearest LRN reference laboratory is positive for H5 or other novel influenza virus; or

(b) A sample from a patient who meets the clinical and epidemiologic criteria for possible infection with a potentially pandemic virus is

positive for influenza A by RT-PCR or rapid antigen detection[2], is negative for influenza A (H1) and A (H3), and the referring jurisdiction is not equipped to test for specific strains; or

(c) The referring jurisdiction is not equipped to test samples for novel influenza viruses by RT-PCR and is requesting testing at CDC.

(2) To prepare the specimen(s) for shipment, use guidelines for the shipment of specimens containing infectious/etiologic agents .

d. After the PI Virus has been Identified

(1) After the PI virus has been identified in the community, laboratory management personnel will coordinate with the LRN reference laboratory utilized to determine the volume of specimens from possible PI patients that will be referred for further characterization. DoD LRN reference laboratories may be asked by the AFIOH or the CDC to forward select specimens for use in monitoring antigenicity, RNA sequence, and drug sensitivities of the pandemic virus over time.

3. Reporting Procedures

a. DoD LRN Reference Laboratories

(1) Positive PI Virus Results (considered "presumptive positive" if using the CDC-developed Influenza A/H5 (Asian Lineage) RT-PCR test). Immediately report H5 or other novel influenza virus results to their installation/command PHEO after consultation with the CDC is completed. The PHEO, with assistance as necessary from the LRN reference laboratory point of contact, will report positive results to the appropriate chain of command, public health officials required in the LRN's "Policy Statement on Notification of Officials of Significant Laboratory Results," other appropriate state/local public health officials, the laboratory referring the specimen tested, and the PHEO of the referring laboratory's installation/command. The laboratory referring the specimen will notify the patient's clinical provider.

(2) Negative PI Virus Results. The LRN reference laboratory will ensure negative results are reported in a timely manner back to the referring laboratory.

b. Referring Laboratory

(1) Positive PI Virus Results. Laboratory management personnel from the referring laboratory will receive results from both DoD and non-DoD reference laboratories and will ensure that their installation's PHEO and the patient's clinical provider are/have been notified.

[2] Because the sensitivity of commercially available rapid diagnostic tests for influenza may not always be optimal, the CDC also will accept specimens taken from individuals who meet the clinical and epidemiological criteria even if they test negative by influenza rapid diagnostic testing –if PCR assays are not available at the nearest LRN reference laboratory.

(2) Negative PI Virus Results. Laboratory management personnel will ensure that the clinical provider is notified. Other personnel will be notified per local guidance.

C. Special Instructions – Autopsy Specimens, Shipping of Specimens, and Select Agent Handling

1. Autopsy Specimen Instructions

The CDC can perform immunohistochemical (IHC) staining for influenza A (H5) viruses on autopsy specimens. Viral antigens may be focal and sparsely distributed in patients with influenza, and are most frequently detected in respiratory epithelium of large airways. Larger airways (particularly primary and segmental bronchi) have the highest yield for detection of influenza viruses by IHC staining. Collection of the appropriate tissues ensures the best chance of detecting the virus by IHC stains.

a. If influenza is suspected, the following is recommended:

(1) Obtain and submit a minimum total of 8 blocks or fixed-tissue specimens representing samples from each of the following sites for evaluation: central (hilar) lung with segmental bronchi, right and left primary bronchi, trachea (proximal and distal), and representative pulmonary parenchyma from right and left lung.

(2) In addition, submit representative tissues from major organs for evaluation. In particular, for patients with suspected myocarditis or encephalitis, specimens should include myocardium (right and left ventricle) and CNS (cerebral cortex, basal ganglia, pons, medulla, and cerebellum).

(3) Include specimens from any other organ showing significant gross or microscopic pathology.

b. Specimens may be submitted as: fixed, unprocessed tissue in 10% neutral buffered formalin; or tissue blocks containing formalin-fixed, paraffin-embedded specimens; or unstained sections cut at 3 microns placed on charged glass slides (10 slides per specimen).

c. Send specimens at room temperature (NOT FROZEN).

d. Fresh-frozen unfixed tissue specimens may be submitted for RT-PCR.

e. Include a copy of the autopsy report (preliminary, or final if available), and a cover letter outlining a brief clinical history and the submitter's full name, title, complete mailing address, phone, and fax numbers, in the event that CDC pathologists require further information. Referring pathologists may direct specific questions to CDC pathologists. The contact number for the Infectious Disease Pathology Activity is 404-639-3133, or the pathologists can be contacted 24 hours a day, 7 days a week through the CDC Emergency Operations Center at 770-488-7100.

2. General Specimen Shipment Instructions

a. Per 42 CFR 72, influenza viruses (all types) are classified as etiologic agents. Under strict interpretation of diagnostic specimen versus infectious substance guidelines, once a rapid antigen or other test for influenza viruses is performed on a patient specimen, and the test result is positive, the specimen, if shipment is required, must be shipped as an infectious substance/etiologic agent. Up to that point in time, specimens may be shipped as diagnostic specimens. However, given the threat posed by novel influenza viruses, any specimen from a patient satisfying the criteria specified in Section I – Guidelines for Patient Evaluation and Management that must be shipped, to include a specimen upon which no influenza testing has been performed, should be handled/shipped as an infectious substance/etiologic agent. The applicable guidance as provided in the appropriate shipping reference (see Section II.A.1.d – i) must be utilized to prepare the specimen(s) for shipment.

b. Shipment of specimens to the CDC. Laboratories should contact the CDC's on-call epidemiologist before sending specimens to the CDC. The on-call epidemiologist can be contacted by calling 404-639-3747/3591, Monday – Friday, 8:30 AM – 5:00 PM, or through the CDC Emergency Operations Center (770-488-7100) at all other times.

(1) In some cases, an LRN reference laboratory may be asked to arrange for a supported laboratory to send samples directly to the CDC.

(2) Send specimens by Priority Overnight shipping for receipt within 24 hours. Samples (such as fresh-frozen autopsy samples for RT-PCR or other clinical materials) may be frozen at -70ºC if the package cannot be shipped within a specified time (e.g., if the specimen is collected on a Friday but cannot be shipped until Monday).

(3) When sending clinical specimens, include the CDC-provided specimen inventory sheet. Annotate the assigned CDC case ID number and note "Influenza Surveillance" on all materials and specimens sent.

(4) Follow protocols for standard interstate shipment of etiologic agents, which are available at http://www.cdc.gov/od/ohs/biosfty/shipregs.htm

3. Select Agent Handling Instructions

H5N1 and other HPAI viruses are classified as select agents by USDA. Laboratories not registered to handle these select agents will follow guidelines as specified in 9 CFR 121.5 upon confirmed identification of an H5N1 or other HPAI virus.

III. Guidelines for Collection of Clinical Specimens

The specimen collection guidelines provided below are general in nature. It is therefore advisable to confirm all specimen collection procedures with the supporting laboratory.

A. Collecting Respiratory Specimens

1. Collection

Respiratory specimens for detection of most respiratory pathogens, and influenza in particular, are optimally collected as soon as possible upon presentation, and preferably within the first 3 days of the onset of illness. If possible, obtain serial specimens over several days from the same patient. Before collecting specimens, review infection control precautions contained in this document.

2. Temperature

In most instances, place specimens at 4°C immediately after collection; however, if the specimens cannot be delivered to the laboratory within 24 – 48 hours, they should be frozen at or below -70°C and shipped on dry ice. Avoid repeated freeze/thaw cycles.

3. Influenza H5N1 Diagnosis

For influenza H5N1 diagnosis, available data indicate that oropharyngeal swab specimens and lower respiratory tract specimens (e.g., bronchoalveolar lavage or tracheal aspirates) are the preferred specimens because they appear to contain the highest quantity of virus.

4. Collecting Specimens from the Upper Respiratory Tract

a. Nasopharyngeal or Oropharyngeal Swabs

(1) Use only sterile dacron or rayon swabs with plastic shafts. Do not use calcium alginate swabs or swabs with wooden sticks, as they may contain substances that inactivate some viruses and inhibit PCR testing.

(2) To obtain a nasopharyngeal swab, insert a swab into the nostril parallel to the palate. Leave the swab in place for a few seconds to absorb secretions. Swab both nostrils.

(3) To obtain an oropharyngeal swab, swab the posterior pharynx and tonsillar areas, avoiding the tongue.

(4) Place the swabs immediately into sterile vials containing 2 ml of viral transport media. Break the applicator sticks off near the tip to permit tightening of the cap. Label each specimen container with the patient's identification number and the date the sample was collected.

(5) Place the specimens at 4°C immediately after collection.

b. Nasopharyngeal wash/aspirate

Nasopharyngeal wash/aspirates are the specimen of choice for detection of most respiratory viruses and are the preferred specimen type for children aged <2 years. These are collected in the following manner:

(1) Have the patient sit with head tilted slightly backward.

(2) Instill 1 ml to1.5 ml of nonbacteriostatic saline (pH 7.0) into one nostril. Flush a plastic catheter or tubing with 2 ml to 3 ml of saline. Insert the

tubing into the nostril parallel to the palate. Aspirate nasopharyngeal secretions. Repeat this procedure for the other nostril.

(3) Collect the specimens in sterile vials. Label each specimen container with the patient's ID number and the date collected.

5. Collecting Specimens from the Lower Respiratory Tract

a. Bronchoalveolar Lavage, Tracheal Aspirate, or Pleural Fluid Tap

(1) During bronchoalveolar lavage or tracheal aspirate, use a double-tube system to maximize shielding from oropharyngeal secretions.

(2) Centrifuge half of the specimen, and fix the cell pellet in formalin. Place the remaining unspun fluid in sterile vials with external caps and internal O-ring seals. If there is no internal O-ring seal, then seal tightly with the available cap and secure with Parafilm.® Label each specimen container with the patient's ID number and the date the sample was collected.

b. Sputum

(1) Educate the patient about the difference between sputum and oral secretions.

(2) Have the patient rinse the mouth with water, take three deep breaths, and then expectorate deep cough sputum directly into a sterile screw-cap sputum collection cup or sterile dry container.

B. Blood Components

Collect and store both acute and convalescent serum specimens as a pair for antibody testing - acute within 7 days of illness onset and convalescent 3–4 weeks after the onset of illness. (Note: The ability of the supporting laboratory to store acute/convalescent serum specimens long-term should be confirmed before wholesale collection of such specimens is initiated.) Collection of such specimens is useful primarily during Federal Government Response Stage 2 and early in Stage 3. To collect serum for antibody testing:

1. Collect 5 ml to10 ml of whole blood in a serum separator tube. Allow the blood to clot, centrifuge briefly, and collect all resulting sera in vials with external caps and internal O-ring seals. If there is no internal O-ring seal, then seal tightly with the available cap and secure with Parafilm®.
2. The minimum amount of serum preferred for each test is 200 microliters, which can easily be obtained from 5 ml of whole blood. A minimum of 1 cc of whole blood is needed for testing of pediatric patients. If possible, collect 1 cc in an ethylenediaminetetraacetic acid (EDTA) tube and in a clotting tube. If only 1cc can be obtained, use a clotting tube.
3. Label each specimen container with the patient's ID number and the date the specimen was collected.
4. Specimens should be refrigerated at 4ºC or frozen for future testing at -20ºC to -80ºC.

IV. Occupational Health Guidelines for Health Care and Medical Research Personnel

The following guidelines amplify the guidelines in Sections I-III above.

A. Surveillance

Medical surveillance of personnel can help to ensure that workers who are at risk of occupational exposure to avian influenza viruses or other novel animal or human influenza strains and who develop symptoms of illness receive appropriate medical evaluation and treatment, both for the benefit of their health and to prevent further transmission to others. Installation/command PHEOs should ensure that plans for an influenza-like illness surveillance system and employee tracking registry for health care personnel within their health care/medical research facilities is developed and ready to be implemented upon declaration of Federal Government Response Stages 3-6. Self-reporting by potentially exposed or symptomatic health care personnel is essential. Screen all health care personnel for influenza-like symptoms before each daily shift – symptomatic individuals should be evaluated (see below) and excluded from duty accordingly. Employee tracking registries should include a log of health care personnel who have provided care for PI-infected patients, absenteeism due to health reasons, and those workers who have been diagnosed and who have recovered from PI.

B. Influenza vaccine

According to CDC ACIP and Service regulations, MTFs should vaccinate all personnel for seasonal influenza who have direct patient care responsibilities or who handle clinical laboratory specimens. In addition, medical research laboratories should vaccinate all personnel working with influenza viruses. Vaccination might reduce the chance of illness from exposure to human influenza viruses currently circulating in the community that could lead to confusion in monitoring for novel influenza virus. When available, administer vaccines against novel influenza viruses in accordance with DoD guidance found on the DoD PI Watchboard at www.dod.mil/pandemicflu.

C. Pre-exposure antiviral prophylaxis (also see previous sections on antiviral use)

1. When considering pre-exposure antiviral prophylaxis, be sure to evaluate appropriate candidates for contraindications, answer their questions, review adverse effects, and explain the benefits.
2. Pre-exposure prophylaxis should not be considered unless infection control practices such as PPE are proven to be ineffective.
3. MTFs and medical research laboratories should maintain a log of healthcare personnel prescribed antivirals, healthcare personnel evaluated and not prescribed antivirals, doses dispensed, and adverse effects.
4. Periodically evaluate and update antiviral use, consistent with the Policy for Release of Antiviral Stockpile during an Influenza Pandemic.

D. Follow-up of Suspected Exposures

Laboratory and health care personnel who are believed to have had an exposure to an avian influenza A virus or other highly pathogenic strain should be evaluated, counseled about the risk of transmission to others, and monitored for fever or lower respiratory symptoms as well as for sore throat, rhinorrhea, chills, rigors, myalgia, headache, or diarrhea.

E. Post-exposure prophylaxis

Conditions for use of antivirals for post-exposure prophylaxis include a known or suspected exposure to live avian influenza virus (including highly pathogenic strains) for an individual not already on antivirals. An appropriate healthcare provider should be available to immediately perform an evaluation and dispense antivirals if the exposure occurs during working hours.

F. Personal Protective Equipment

Please see I.A.2.a(3) (Infection Control Practice during Federal Government Response Stages 0-2). All healthcare personnel must comply with their Respiratory Protection program (including fit-testing and training) before use of all NIOSH-certified N-95 filtering facepiece respirators. Healthcare personnel should also perform a user seal check to ensure the respirator is properly seated to the face before each use.

G. Management of ILI in Health Care Personnel with Suspected Exposure to Novel Influenza Viruses

1. General procedures

Potentially exposed individuals should promptly notify their supervisor and receive prompt medical evaluation. The clinical provider should inform the installation/command PHEO. If illness or infection is confirmed, PHEO will notify appropriate chain of command, local and/or State public health agencies. Supervisors and workers' compensation authorities (in the case of civilian personnel) should also be notified of exposures and illnesses in laboratory and healthcare personnel. (Note: Viral culture of specimens from cases of suspected exposure to novel influenza viruses should be attempted only in laboratories that meet the biocontainment conditions for biosafety level 3 (BSL-3) with enhancements or higher.)

2. Evaluation and Management

Workers should report any ILI and any potential exposures to the supervisor, and report for evaluation and treatment as directed (See Sections I.A.1, I.A.2, I.B.1., I.B.2)

a. During Regular Working Hours

(1) The affected employee should notify their supervisor. The supervisor should immediately consult an appropriate healthcare provider and facility contacts (e.g., occupational health, infection control, or designee).

(2) Upon arrival at the designated clinic, place the employee in a private room for isolation where a healthcare provider can perform an appropriate evaluation.

(3) The healthcare provider should obtain a respiratory specimen(s) and send for appropriate diagnostics testing. See Section I (Guidelines for Patient Evaluation and Management) regarding clinical specimens to be collected.

(4) Based on the clinical evaluation and results of diagnostic testing, the healthcare provider should determine whether the patient will return to work, be sent home, or be referred on for further evaluation. If employees are sent home,

b. During Working Hours When the Employee Calls from Home

(1) The employee should notify the supervisor. The supervisor should discuss the situation with an appropriate healthcare provider and determine where and by whom the employee will be evaluated and clinical specimens sent for appropriate diagnostic testing.

(2) The worker should come to an on-site clinic for evaluation and disposition.

(3) If infection of the worker is confirmed, household and other close contacts should be considered for antiviral prophylaxis in consultation with the installation/command PHEO.

c. After working hours

The worker should notify the current shift supervisor. The supervisor, in turn, should direct the worker where to go for evaluation and disposition.

V. Guidelines for Community Disease Containment

Non-pharmacologic measures are an integral component of the overall community response efforts during a pandemic. If interventions are initiated early, past experience strongly suggests that the overall burden of disease on a community can be significantly reduced which in turn can result in a decreased requirement for antiviral medications as well as reduced demands on the medical infrastructure to include both inpatient and outpatient resources.

A. Surveillance

The effectiveness of community containment measures mandates early intervention. To achieve this goal, surveillance activities should be increased in accordance with the stage of the pandemic. During the pre-pandemic period, preexisting surveillance activities, if employed, should prove to be adequate. As the threat increases, community-based surveillance must also increase to ensure near real-time identification of initial cases. Public awareness programs and the establishment of reporting requirements for local clinics, providers, MTF's, public health assets and the garrison will facilitate this process.

B. Targeted Layered Interventions[3]

No one single non-pharmacologic measure is likely to have a profound impact, but layered interventions can have an additive or synergistic effect. If interventions are implemented early and combined with antiviral therapy drastic reductions in disease transmission can be achieved. The following interventions are representative but not exhaustive:

1. Timing

For interventions to be effective timing is critical. Experience in 1918 demonstrated that nonpharmacologic interventions had a marginal effect if their implementation was delayed until a community epidemic was well-established (this is the pattern observed in, e.g., Philadelphia, Montreal, Baltimore, Newark, Washington DC, etc.). In contrast, many communities that introduced nonpharmacologic measures early avoided the overwhelming stress on critical infrastructure caused by an unmitigated epidemic (this pattern was observed in Atlanta, Minneapolis, Milwaukee, Seattle, St. Louis and other cities). Following implementation, interventions should be maintained for the duration of time the pandemic wave is affecting the community. With the potential of multiple waves this process is likely to be repeated. Modeling suggests that implementation of targeted, layered interventions at threshold attack rates as low as 0.1 to 2.0% can offer a substantial benefit in reducing the peak attack rate.

2. Closure of Schools, Child Care Centers, and Other Child-based Programs

Installation commanders should strongly consider school closure as this may be one of the most effective community measures. To effectively reduce the burden of disease within an installation or community, this measure should be initiated early following identification of disease in the community. With respect to influenza outbreaks, children are "super spreaders" who serve to amplify disease transmission. As such, children a significant transmission risk to the community. Epidemics peak in children and teens before they do in older age groups, often with increased mortality. It is projected that during a moderately severe pandemic, pediatric deaths equaling that expected over two decades will occur during the course of the pandemic. The interruption of influenza epidemics by school holidays has been associated with marked declines in emergency department visits for respiratory illness and in national reporting of influenza cases. Recent modeling strongly suggest that early closure of schools and day care centers, particularly if coupled with deliberate efforts to reduce the social circulation and congregation of children and teens, is likely to have a significant effect on transmission rates within a community. Commanders should also ensure that appropriate servicemembers have family care plans that are up-to-date.

[3] More detailed information regarding Targeted Layered Interventions, to include pandemic severity categories, mitigation measures, and triggers, can be found in the CDC publication: "Interim Pre-Pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States – Early, Targeted, Layered Use of Nonopharmaceutical Interventions" (February, 2007).

3. Social Distancing

To facilitate social distancing, installation commanders should close facilities such as theaters and recreational venues where crowds may gather. Activities that would foster the formation of crowds should be canceled or modified to circumvent crowd formation. If feasible, this action should be initiated in communities prior to the arrival of PI and continued throughout the period of time the pandemic wave is affecting the community. Planning with local clergy to establish ways that the community might receive pastoral care and engage in worship without exposure to crowds should be undertaken as part of pre-pandemic planning. If enclosed spaces cannot be avoided, then at least 3-6 feet should be provided between individuals. Ceremonial formations should not be held when pandemic influenza is affecting a community. Required formations such as training and drills should be limited. Teleconferencing should be employed whenever possible in preference to face-to-face meetings and nonessential meetings canceled. In the workplace additional measures should be implemented if appropriate, to include telecommuting and liberal leave policies for those in isolation or in quarantine. Restructuring the workplace and work practices to facilitate social distancing, while maintaining operational effectiveness, should also be employed. This may include staggered work hours, provision of increased public transportation with seating to ensure safe distancing, and consultation with vendors to develop "push packages" of essential supplies that can be picked up via drive-through/drive-by.

4. Open Barracks

In open barracks settings bed space should be as widely spaced as possible and head-to-toe sleeping positions should be adopted. Hanging bed sheets in between beds also may be effective. Those living in open barracks should have decreased exposure to the community particularly if there is a paucity of disease in the barracks as opposed to high burden of disease in the community.

5. Prompt Isolation

Prompt isolation of the ill and quarantine of those immediately exposed will be especially important in open barracks. In this setting it may be necessary to designate a separate facility or area to diminish exposure to the general barracks population. In modular barracks settings use of individual pods or bedrooms may be adequate for both quarantine and isolation.

6. Post-Exposure Prophylaxis

a. Depending on the availability of antiviral medications, post-exposure prophylaxis should be considered for contacts of known cases. Strategies for post exposure prophylaxis can represent either a high dose-short duration or an alternative low dose-long duration approach. Both approaches are initiated simultaneous to the treatment of a known case. Only those with close and prolonged contact with the case should be considered for therapy. This may include immediate family members or in a barracks setting, those that occupy the same bedroom. In open bay settings this might include those with beds immediately adjacent to the case.

b. High dose-short duration approach: this represents a 5-day antiviral course consistent with a typical treatment course (e.g., Oseltamivir, 75mg, twice daily). The advantages to this approach is the potential treatment of pre-symptomatic individuals with infection and the decreased possibility of both administering a sub-therapeutic dose and the subsequent development antiviral drug resistance. The disadvantage of this approach is the potential exposure to viral shedding from the initial case, after the 5-day post-exposure treatment course concludes.

c. Low dose-long duration approach: this represents providing one 10-day antiviral course consistent with a typical prophylaxis course (e.g., Oseltamivir, 75mg, once daily). The advantage of this approach is a longer period of protection that may exceed the potential period of viral shedding by the initial case. The disadvantages are providing a sub-therapeutic dose to those with infection following exposure and the subsequent development of antiviral drug resistance.

7. Graded response

With increasing disease severity, the importance of early intervention and the extent that each of these measures are undertaken increases accordingly. A pandemic characterized by mild disease may not require widespread use of quarantine measures and school closure may be reactive rather than proactive. Conversely, a pandemic characterized by severe disease will require a proactive school closure and the effective use of isolation and quarantine practices as well as wide spread social distancing measures

8. Communication

A key factor influencing the success or failure of a layered community-based disease containment strategy is acceptance by the community. Long before a pandemic is imminent, education programs, reflecting transparency and containing factual information on the rationale for such measures, should be developed; opportunities for community stakeholders to share in planning and implementation should be offered as well.

9. Community mask use

Due to the lack of evidence facemask use alone should not be assumed to have an appreciable impact on reducing transmission of pandemic influenza. They do provide a potential barrier that might limit spread of disease. Rather than relying on masks and respirators, people should engage in social distancing whenever possible. If close contact and crowded conditions cannot be avoided wearing a mask or respirator should be considered. Respirators should be worn in cases where close contact with infected persons if unavoidable. This includes, but is not limited to, people who are providing home care for a sick family member. When combined with other layered mitigation measures, the use of mask or respirators may have a benefit in reducing the spread of disease within a community. There are a number of respirators that are recently FDA approved for use in non-hospital settings during public health emergencies. These devices are expected to provide some degree of

protection depending on the fit and user compliance. These masks are for singe use. The wearer should not wash, disinfect, reuse or share their respiratory with others.

VI. Special Considerations for Deployed Settings

The following special considerations for deployed settings amplify the MTF-based guidelines above. Information on PI (to include minimizing exposure) should be a routine part of pre-deployment briefings. Unit surgeons/PHEOs are responsible for maintaining situational awareness on PI and should also be familiar with principles of PIP, Standard Precautions, and Infection Control Practices (Sections I.A.2.a(3), I.A.2.c(1), I.B.2.a(3)., and I.B.2.c(1).) and how these could be adapted in battlefield and operational settings.

A. Guidelines for Patient E&M during the Federal Government Response Stages 0-2 (WHO Phases 1-5)

1. Evaluation and Management of Patients with ILI with PI risk factors – Role I

a. Prior terminology was "Echelon" or "Level 1.

b. Evaluate using clinical and epidemiological criteria. According to WHO guidance, investigate unexplained cluster of 3-5 cases of respiratory disease. In areas experiencing WHO 4-5 situations, contacts of suspected PI cases should be aggressively evaluated.

c. Use PIP in addition to Standard Precautions.

d. Evacuate, IAW COCOM/theater evacuation policy, to other higher medical roles (II or III) via gound/air evacuation to access additional diagnostic capabilities. Use surgical mask on the patient. If patient is severely ill, evacuate to Role III (or equivalent facility with laboratory culture capabilities). If evacuation is required, notify all parties of the potential for infection with PI.

e. Notify higher headquarters.

f. Review plans for isolation of cases, health care surge capacity, and social distancing (e.g., chow lines, telephone tents, exercise areas, etc.)

g. Identify close contacts (e.g., same tent or berthing space, office space, vehicle, etc.) Recommend quarantine for 7-10 days of close contacts of symptomatic patients. Consider restriction of movement for other members of the unit.

h. Monitor close contacts daily for temperatures >100.4°F (>38°C) and other ILI symptoms and medically re-evaluate if ill.

i. Administer antivirals (if available) and treat secondary complications. Operational commanders should maintain a log of all personnel/units prescribed antivirals, personnel evaluated and not prescribed antivirals, doses dispensed, and adverse effects. Consider antivirals for use in close contacts of suspected PI cases. (See also V.B.6 – Guidelines for Community Disease Containment, Post-Exposure Prophylaxis)

2. Evaluation and Management of Patients with ILI with PI risk factors – Role II

a. Prior terminology was "Echelon" or "Level 2."

b. If possible, isolate and cohort respiratory versus non-respiratory patients. Use PIP in addition to Standard Precautions, including the provision of dedicated staff if possible.

c. Obtain respiratory specimens for diagnosis. Perform rapid antigen diagnostics if available. Check DoD PI Watchboard at www.dod.mil/pandemicflu to identify nearest laboratory or other designated testing facility capable of performing the FDA-cleared RT-PCR (or other appropriate test) for the PI virus. Transport specimens to this identified facility via military air. Coordinate with appropriate authorities, including Logistic Services (for priority 1 cargo movement) and COCOM Surgeon (for validation of requirement) in order to rapidly transport specimens. Positive test results will be reported by the reference laboratory to the referring medical unit. The referring medical unit will notify their respective command PHEO, who will then report the results through the established chain-of-command.

d. Administer antivirals (if available) and treat secondary complications. Operational commanders should maintain a log of all personnel/units prescribed antivirals, personnel evaluated and not prescribed antivirals, doses dispensed, and adverse effects. Antivirals should be considered for use in close contacts of suspected PI cases. (See also V.B.6 – Guidelines for Community Disease Containment, Post-Exposure Prophylaxis)

e. Consistent with USTRANSCOM policy, patients with suspected or confirmed PI should not be moved or evacuated out of theater. Movement of patients with other morbidities (e.g., trauma) out of theater may also be restricted.

3. Evaluation and Management of Patients with ILI with PI risk factors – Role III

a. Prior terminology was "Echelon" or "Level 3."

b. If possible, isolate and cohort respiratory versus non-respiratory patients. Use PIP in addition to Standard Precautions, including the provision of dedicated staff if possible.

c. Obtain respiratory specimens for diagnosis. Perform rapid antigen diagnostics if available. Refer tothe DoD PI Watchboard at www.dod.mil/pandemicflu to identify nearest LRN reference laboratory or other designated testing facility capable of performing the FDA-cleared RT-PCR (or other appropriate test) for the PI virus. Transport specimens to this identified facility via military air. Coordinate with appropriate authorities, including Logistic Services (for priority 1 cargo movement) and COCOM Surgeon (for validation of requirement) in order to rapidly transport specimens. The reference laboratory will report positive test results to the referring medical unit. The referring medical unit will notify their respective installation/command PHEO, who will then report the results through the established chain-of-command.

d. Administer antivirals (if available) and treat secondary complications. Operational commanders should maintain a log of all personnel/units prescribed antivirals, personnel evaluated and not prescribed antivirals, doses dispensed, and adverse effects. Antivirals should be considered for use in close contacts of suspected PI cases. (See also V.B.6 – Guidelines for Community Disease Containment, Post-Exposure Prophylaxis)

e. Identify unprotected exposures among personnel involved with patient transportation and care. Evaluate these individuals for symptoms, consider restriction of movement (including quarantine), and use antivirals, if available.

f. Consistent with USTRANSCOM policy, patients with suspected or confirmed PI should not be moved or evacuated out of theater. Movement of patients with other morbidities (e.g., trauma) out of theater may also be restricted.

B. Guidelines for Patient Evaluation and Management during the Federal Government Response Stages 3-5 (WHO Phase 6)

1. If pandemic strain vaccine is available, conduct mass-vaccinations.
2. Execute plans for social distancing to the extent possible.
3. Consistent with USTRANSCOM policy, patients with suspected or confirmed PI should not be moved or evacuated out of theater. Movement of patients with other morbidities (e.g., trauma) out of theater may also be restricted.
4. Movement of patients with suspected or confirmed PI within theater also may be restricted as part of disease containment strategies. The theater commander would make this decision in consultation with the Combatant Command (COCOM) PHEO and Surgeon.
5. Address unique medical support requirements such as mental health.
6. To support "treatment in place," request additional critical medical materiel and equipment, treatment teams, and enhanced diagnostics.
7. Support surveillance activities to track changes in viral resistance patterns.
8. Coordinate with logistics community to prepare for an increase in deaths.
9. Once a pandemic is underway, health care providers may be required to triage patients and consider utilizing limited resources (e.g., antibiotics, antivirals, ventilators, etc.) for those most likely to benefit from such care. Clinical management of severe influenza should address supportive care and the rapid identification and treatment of secondary complications, including bacterial infections.