

Louisiana

**Statewide Draft
Pandemic Influenza
Plan**



September 2006

I. Introduction

- I.1 An influenza Pandemic may emerge with little warning, affecting a large number of people within a short space of time. During the first wave of the pandemic, outbreaks may occur simultaneously in many locations throughout the nation, preventing a targeted concentration of national and state emergency resources in one or two places-and requiring each locality to depend in large measure on its own resources to respond. A vaccine will not yet be available, and the supply of antiviral drugs will be limited. Local outbreaks may last for weeks or months, and widespread illness in a particular community could lead to shortages in the healthcare sector as well as in essential services. Local preparation and response is crucial.
- I.2 An effective local response will depend on pre-established partnerships and collaborative planning by public health officials, hospital administrators, and community leaders who have considered a range of best-case and worst-case scenarios. It will require flexibility and real-time decision-making, guided by epidemiologic information on the pandemic virus. It will also depend on a well-informed public that understands the dangers of pandemic influenza and accepts the potential need for control measures like self-isolation and quarantine that prevent disease spread by reducing social contact. The public must also understand and accept the rationale in prioritizing the use of limited supplies of antiviral drugs and initial stocks of vaccines.
- I.3 The goal of the Louisiana Draft Statewide Pandemic Influenza Plan is to help Regional and local jurisdictions and healthcare facilities plan to mount an effective response to pandemic influenza. The information and guidance contained in the state-level draft, combined with the planning templates and checklists can be used as planning resources for regional and local communities, healthcare entities, businesses, and essential community partners.
- I.4 Purpose and Aims
- I.4.1 Louisiana, along with all local governments must be prepared to detect the earliest cases of disease, to minimize illness and morbidity, and to decrease social disruption and economic loss. The principle aims of this draft plan are to:
- I.4.1.1 Consistently and regularly update state-level emergency plans, including all plans developed in fulfillment of activities under the Centers for Disease Control and Prevention (CDC) and Health Resources and Services Administration Cooperative Agreements for Public Health Emergency Preparedness and Bioterrorism Hospital Preparedness.

- I.4.1.2 Encourage and facilitate regional and local planning, as Federal and State resources will be inadequate to support communities during a pandemic.
- I.4.1.3 Help healthcare partners address the medical challenges of pandemic influenza (e.g., evaluation and management of large numbers of patients, occupational health risks, and limited supplies of antiviral medications and vaccines).
- I.4.1.4 Define the state-level public health role in healthcare planning and preparation for pandemic influenza.
- I.4.1.5 Strengthen linkages between public health and private sector partners-including healthcare facilities, community-based organizations, clinical laboratories, behavioral health experts, and first responders-to protect health and preserve essential services during a pandemic.

I.5 Organization

I.5.1 This plan provides an overview of state-level roles and responsibilities during a pandemic. Some of these activities are well developed, while others are still in the planning process. This is a draft plan which will continue to be updated on a regular basis. It is organized into 14 sections:

- I. Introduction
- II. Pandemic influenza disease surveillance
- III. Laboratory diagnostics
- V. Infection control
- VI. Rural health and primary care
- VII. Clinical guidelines
- VIII. Vaccine distribution and use
- IX. Antiviral drug distribution and use
- X. Strategic National Stockpile
- XI. Community disease control and prevention
- XII. Management of travel-related risk of disease transmission
- XIII. Communications
- XIV. Psychosocial workforce support services

I.6 Overview of Community-wide Planning to Support Healthcare Facilities

I.6.1 Without special preparation, a large-scale pandemic could quickly overwhelm local healthcare facilities and resources. Although institutional planning by hospitals is essential, it is not sufficient. Hospitals depend on many organizations and groups-e.g., suppliers of food, drugs, and medical supplies, sanitation workers, and telephone companies-to accomplish their day-to-day tasks. If workforce illnesses and absences prevent these organizations from functioning normally during a pandemic, hospitals will be severely affected.

I.6.2 Therefore, National and State health authorities recommend the establishment or incorporation of Pandemic influenza planning activities into regional and local planning task forces that will ensure community readiness to provide emergency support to healthcare facilities. These task forces should be integrated with state-wide planning efforts and should reflect common goals and principles for preparedness and response.

I.6.3 Each local task force should include representatives from hospitals, community service organizations, professional organizations of physicians, nurses, and pharmacists, home health care organizations, long term care facilities, federally qualified health centers (FQHC) and other healthcare safety net providers, emergency medical services, behavioral health experts, and public health officials. The task forces should also include private sector partners who provide essential services such as food, electricity, and water. They may also include civil protection authorities such as the police, sheriff's departments, and firefighters.

I.6.4 During a pandemic, these regional and local task forces would be responsible for coordinating health care activities within the community and should work with the state health department and hospitals to:

I.6.4.1 Improve communication with medical care providers and health care organizations.

I.6.4.2 Monitor local hospital resources (e.g., adult and pediatric hospital beds, intensive care unit beds, emergency department beds, medical supplies, respirators, and other equipment, mortuary capacity).

I.6.4.3 Address emergency healthcare staffing needs and other medical surge capacity issues.

I.6.4.4 Encourage coordination amount state and federal healthcare facilities, such as Veterans Administration hospitals, Indian Health Service facilities, and Department of Defense hospitals.

I.6.4.5 Conduct contingency planning with:

I.6.4.5.1 Private sector groups that support hospital functions, to ensure continuity of operations during the pandemic. These groups may include medical supply companies, medical gas companies, companies that supply food and clean linens, and internet service providers.

I.6.4.5.2 Public utilities (water, electricity, gas, telephone, sanitation) to ensure continued service during the pandemic.

I.6.4.5.3 Local law enforcement agencies who can help maintain order if a hospital is overwhelmed by a large volume of patients (ill, or worried about being ill).

I.6.4.6 Identify alternative care sites for patient care (child and adult) and possible sites for quarantine.

I.6.4.7 Identify community based organizations that can provide psychological and social support to healthcare workers, pubic health field workers, and other emergency responders.

I.7 Community Planning in Rural Areas

I.7.1 Special effort should be made by regional task forces to address pandemic planning issues in rural communities and other areas where emergency rooms and other resources for urgent care and emergency treatment are lacking. Without community-wide planning, a surge of pandemic influenza patients could force the closure of local outpatient healthcare clinics. Planning partners may include healthcare providers at outpatient clinics, FQHC's, HIS and tribal health care facilities, and other healthcare safety net providers that deliver care to low-income and other vulnerable populations.

I.8 Summary

I.8.1 Adequate planning for a pandemic requires the involvement of every level of our nation, and indeed, the world. The ubiquitous nature of an influenza pandemic compels federal, state and local governments, communities, corporations, families and individuals to learn about,

prepare for, and collaborate in efforts to slow, respond to, mitigate, and recover from a potential pandemic. This state-level draft plan is intended to serve as the basis for regional and local plans to respond to an influenza pandemic, and can bolster emergency and disaster planning in all areas.

- I.8.2 All regional and local governments, healthcare institutions, community service organizations, large businesses, and essential community partners are encouraged to update their current disaster and emergency plans to incorporate pandemic influenza planning issues. This can be done by utilizing this state draft plan as a starting point, then using templates and checklists for planning, which can be accessed at <http://www.pandemicflu.gov/plan/checklists.html> and <http://www.pandemicflu.gov/plan/tools.html>.

II. Pandemic Influenza Disease Surveillance

II.1 Background - Epidemiology of Pandemic Influenza

II.1.1 Influenza viruses are unique in their ability to cause infection in all age groups on a global scale. In addition to the highly transmissible nature of influenza, the virus can change its antigenic structure, resulting in novel sub-types that have never occurred in humans before. Major shifts in the viral sub-types are associated with influenza pandemics. The 1918 influenza pandemic caused more than 20 million deaths worldwide while the pandemics of 1957 and 1968 resulted in lower mortality rates due in part to antibiotic therapy for secondary bacterial infections and more aggressive supportive care. They both, however, were associated with high rates of morbidity and social disruption.

II.1.2 Pandemic influenza is a unique public health emergency and community disaster. It is considered a highly probable, if not inevitable, event but no one can predict when it will occur. There may be little warning, but most experts agree that there will be one to six months between identification of a novel virus and widespread outbreaks in the U.S. It is widely hypothesized that outbreaks will occur simultaneously throughout the U.S., and the effect on individual communities will last at least from six to eight weeks or more. Certain conditions make an influenza pandemic more likely:

- A new influenza A virus arising from a major genetic change, i.e., an antigenic shift.
- A susceptible population with little or no immunity;
- A virus that is transmitted efficiently from person to person; and
- A virulent virus with the capacity to cause serious illness and death.

II.2 Pandemic Phase Chart

II.2.1 National pandemic planning is divided into several phases, from early identification of a novel virus to resolution of pandemic cycling. These phases are determined and announced by the CDC in collaboration with the World Health Organization . These declared and defined phases will help ensure a consistent and coordinated response by national, state, and local agencies in the event of a pandemic influenza occurring. The intent is for all activities listed in this document to be initiated during the assigned pandemic phase. Some activities will, of course, continue during subsequent phases.

WHO Schema		
Interpandemic period		
Phase 1.	No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk ^a of human infection or disease is considered to be low	Strengthen influenza pandemic preparedness at the global, regional, national and subnational levels.
Phase 2.	No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk ^a of human disease	Minimize the risk of transmission to humans; detect and report such transmission rapidly if it occurs.
Pandemic alert period		
Phase 3.	Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact. ^b	Ensure rapid characterization of the new virus subtype and early detection, notification and response to additional cases.
Phase 4.	Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans. ^b	Contain the new virus within limited foci or delay spread to gain time to implement preparedness measures, including vaccine development
Phase 5.	Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).	Maximize efforts to contain or delay spread, to possibly avert a pandemic, and to gain time to implement pandemic response measures.
Pandemic period		
Phase 6.	Pandemic: increased and sustained transmission in general population. ^b	Minimize the impact of the pandemic.

WHO Schema
<p>^aThe distinction between <i>phase 1</i> and <i>phase 2</i> is based on the risk of human infection or disease resulting from circulating strains in animals. The distinction is based on various factors and their relative importance according to current scientific knowledge. Factors may include pathogenicity in animals and humans, occurrence in domesticated animals and livestock or only in wildlife, whether the virus is enzootic or epizootic, geographically localized or widespread, and/or other scientific parameters.</p> <p>^b The distinction between <i>phase 3</i>, <i>phase 4</i> and <i>phase 5</i> is based on an assessment of the risk of a pandemic. Various factors and their relative importance according to current scientific knowledge may be considered. Factors may include rate of transmission, geographical location and spread, severity of illness, presence of genes from human strains (if derived from an animal strain), and/or other scientific parameters.</p>

Figure 1: WHO Schema

II.3 Surveillance

II.3.1 Influenza surveillance requires global and national monitoring both for virus strain and disease activity. Timely identification of circulating or novel virus strains includes detection from avian and animal sources as well as human cases. Monitoring influenza disease activity is important to facilitate resource planning, communication, intervention, and investigation. The essential requirement for effective state pandemic surveillance is a well-functioning inter-pandemic system that includes Louisiana’s participation in all aspects of influenza surveillance as outlined by the Centers for Disease Control and Prevention (CDC). This includes the following surveillance components:

II.3.1.1 Human Virologic surveillance by the DHH/DHH/OPH State Laboratory in collaboration with CDC Laboratories

II.3.1.2 Epidemiologic Surveillance in Humans by the Infectious Disease Epidemiology Section and Regional Epidemiology Teams

- Active surveillance of influenza-like illness (ILI) by sentinel providers
- Determination of overall state level of influenza activity in Louisiana
- Monitoring influenza-like illness (ILI) in hospitals,
- Mortality monitoring as part of the 122-Cities pneumonia and influenza mortality system, of which 3 cities (New Orleans, Baton Rouge and Shreveport) are inclusive in reporting mortality data.
- Investigation of influenza like illness outbreaks,
- Case investigations of severe illness and deaths associated with influenza.

II.3.1.3 Veterinary Surveillance

II.4 Virologic Surveillance in humans

II.4.1 The virologic surveillance is conducted by DHH/Office of Public Health (DHH/OPH) Laboratory. The state laboratory provides viral isolation and serologic testing for influenza. The capabilities are:

- Isolate viruses in culture
- Subtype influenza viruses in type A or B
- Perform PCR testing.

II.5 Virologic surveillance during the Interpandemic

II.5.1 The goal of the state's virologic surveillance is to identify circulating influenza viruses and confirm clusters /outbreaks of ILI as caused by influenza viruses or other viruses. Virologic surveillance is carried out during the influenza season with maintenance capability year round.

II.5.2 The CDC laboratories perform the characterization of strains submitted by the state. The purpose of this characterization is to provide information for the annual vaccine formulation and detect strains with pandemic potential.

II.5.3 Specimens are submitted when:

- Increases in ILI are detected by sentinel and non-sentinel sites,
- Clinical virology laboratories submit influenza virus isolates for viral subtyping.
- Outbreaks are investigated
- Control of transmission is evaluated

II.5.4 Select influenza isolates from the DHH/OPH laboratory or clinical virology laboratories are submitted to the CDC for antigenic analysis.

II.5.5 Laboratory influenza data (positives and negatives) is transmitted electronically to CDC via the Public Health Laboratory Information System.

II.5.6 Laboratory safety issues – DHH/OPH laboratories have been designated as Biosafety Level II labs with potential upgrade to Biosafety III to handle critical agents.

II.7 Virologic surveillance during the Pandemic Alert Period

II.7.1 The virologic surveillance system is enhanced. Novel influenza strains might include avian influenza viruses that can infect humans, other animal influenza viruses (such as swine influenza viruses), or new or re-emergent human influenza strains that cause outbreaks of human disease.

II.7.2 The specific recommendations will depend on the epidemiology of the virus and the clinical characteristics of the human cases as they are known at the time, and will most likely focus on severely ill, hospitalized, or ambulatory patients who meet certain epidemiologic and clinical criteria.

II.7.3 Sentinel providers, Public Health investigators, and Emergency Department staff will be requested to collect respiratory specimens from patients who present with severe ILI and one of the following:

- Traveled recently to a region where a novel strain of influenza has been identified;
- Received influenza vaccine within the previous year and present with ILI;
- Presented with unusually severe symptoms of ILI regardless of their travel history

II.7.4 The CDC will notify DHH/OPH of current recommendations via the Health Alert Network (HAN) and Epi-X. DHH/OPH will further distribute the recommendations to healthcare providers and will be responsible for receiving initial reports of potential cases in their jurisdictions.

II.7.5 Example of recommendations issued for the 2005 H5N1 Avian flu strain are presented in section 2.2

II.7.6 One respiratory specimen should be submitted directly to the DHH/OPH lab to test for the novel influenza virus. The submitter may send a duplicate specimen to their usual laboratory provider for detection of influenza viruses during periods of low influenza activity.

II.7.7 Rapid influenza test sites should forward to the DHH/OPH lab specimens that are rapid test positive for influenza for confirmation of test results and influenza isolates for subtyping and subsequent characterization at CDC

II.8 Virologic surveillance during the Pandemic Period

II.8.1 During the pandemic period, diagnosis of individual cases becomes less important. Most cases will be diagnosed clinically. The role of the laboratory is limited to identifying new strains that may appear.

II.9 Epidemiologic Surveillance in Humans - Flexibility

II.9.1 In the event of an influenza pandemic, surveillance systems shall be flexible and be rapidly adapted to respond to the challenges of a pandemic in order to assess and monitor the pertinent epidemiology of the pandemic influenza virus.

II.9.2 Case Based Surveillance in the initial phase of a pandemic: the focus will be on detecting individual cases with specific characteristics that indicate likely infection by a new strain. The surveillance systems will need to have the sensitivity to detect and characterize circulating strains of influenza virus as well as early human cases of a novel virus in the state. The epidemiologic surveillance is focused on detection of unusual cases and virologic surveillance on identifying new strains. The focus of disease control is on stamping out transmission around individual cases.

II.9.3 Epidemiologic surveillance will shift to a Community Based Model. Epidemiologic surveillance will focus on:

- Identification of population groups at risk of transmitting infections,
- Quantification of health care needs, severe morbidity
- Quantification of mortality.

II.9.4 The surveillance activity will need to assimilate large amounts of data to determine age-specific, population specific attack rates, morbidity, and mortality. The focus of disease control will shift to identify best community preventive actions and direct health care resources towards the neediest population.

II.9.5 Prior to the Immunization Phase it is expected that vaccines will be in short supply and priorities will be established. Epidemiologic surveillance will provide data useful to identify priorities in immunization strategies. Immunization programs may aim at 1-immunizing groups of high transmitters, or 2-immunizing groups at high risk of severe morbidity and mortality which may be the elderly or a younger population group. In deciding which groups will be given the vaccine, the focus maybe on saving lives or on saving years of life.

II.9.6 During the mass immunization phase, epidemiologic surveillance will be geared at evaluating the response to immunization and virologic surveillance at identifying any new strains that affect properly immunized individuals.

II.9.7 During recovery, epidemiologic surveillance aims at detecting continuous foci of infection.

II.10 During the Interpandemic

II.10.1 Active surveillance of influenza-like illness (ILI) by the Sentinel Provider Network (SPN)

II.10.1.1 Disease-based sentinel surveillance is conducted by a voluntary network of sentinel providers as part of the U.S. Sentinel Provider Network. This program has been established within the state and is conducted in joint collaboration with CDC (with at least the minimum number of health care providers - 1/250,000 persons or a minimum of 10 providers in states with smaller populations) with regular reporting of weekly data to CDC via the Internet year-round. All providers are encouraged to send specimens collected from patients with ILI at the beginning, middle, and end of the season to the state laboratory for viral culture at no charge to the provider. This project provides a central repository for influenza morbidity and virologic surveillance data that can be readily analyzed by CDC.

II.10.1.2 Currently, Louisiana has an active State Influenza Surveillance Coordinator who:

II.10.1.2.1 Monitors sentinel provider data for the reporting of ILI by four age group categories (0 to 4 years, 5 to 24 years, 25 to 64 years and > 65 years) on a weekly basis,

II.10.1.2.2 Provides feedback and maintains contact with sentinel providers weekly to encourage reporting and follow-up on unusual reports,

II.10.1.2.1 Contributes to state pandemic planning issues and activities,

II.10.1.2.1 Establishes and maintains strong working relationships with the public health laboratory and other laboratories performing primary isolation, and

II.10.1.2.1 Encourages sentinel providers to actively submit ILI specimens for viral culture to the state laboratory.

II.10.1.3 During the 2004-2005 influenza season, there were 127 providers in Louisiana who participated in the Sentinel Providers Network:

- 25 Hospitals
- 64 Private providers
- 18 Schools
- 20 Nursing homes

II.11 Determination of overall state level of influenza activity in Louisiana

II.11.1 Based on the data collected, the State Influenza Surveillance Coordinator conducts weekly assessment of overall influenza activity level in the state and reporting of that data to CDC.

Activity Level	ILI activity*/outbreaks		Laboratory Data
No activity	Low	&	No lab-confirmed cases†
Sporadic	Not increased	&	Isolated lab-confirmed cases Lab-confirmed outbreak in one institution‡
Local	Not increased Increased ILI in 1 region**; ILI activity in other regions is not increased	&	Recent (within the past 3 weeks) lab evidence of influenza in region with increased ILI Recent (within the past 3 weeks) lab evidence of influenza in region with the outbreaks; virus activity is no greater than sporadic in other regions
Regional	2 or more institutional outbreaks (ILI or lab confirmed) in 1 region; ILI activity in other regions is not increased Increased ILI in 2 but less than half of the regions	&	Recent (within the past 3 weeks) lab confirmed influenza in the affected regions
Widespread	Institutional outbreaks (ILI or lab confirmed) in 2 and less than half of the regions Increased ILI and/or institutional outbreaks (ILI or lab confirmed) in at least half of the regions	&	Recent (within the past 3 weeks) lab confirmed influenza in the state.

Figure 2: Influenza Activity Levels

II.12 Monitoring influenza-like illness (ILI) in hospitals

II.12.1 As part of the syndromic surveillance system based on emergency room departments, data is collected in a limited number of hospitals. This system enables electronic data from hospital emergency departments to be transmitted to a central database that LA Infectious Disease Epidemiology Section will monitor.

II.12.2 ILI surveillance in hospitals is conducted in 25 hospitals across the state. Information on ILI is obtained from the Infection Control Practitioners

(ICPs) on a weekly basis. The ILI data summary is derived from ICD-9 codes which identify ILI cases from ER visits and inpatient census. Further case investigations on patients hospitalized at their institutions are conducted on those who have unusual clinical syndromes or severe morbidity associated with influenza. The ICPs also assist in the reporting and investigations of pediatric deaths associated with influenza.

II.13 Mortality monitoring in three cities in Louisiana, as part of the 122-Cities pneumonia and influenza mortality system, are inclusive in reporting mortality data.

II.13.1 Vital statistics offices in 122 cities covering between one-fourth and one-third of the U.S. population report weekly throughout the year the total number of death certificates filed and the number with pneumonia and/or influenza listed anywhere on the death certificate, by age group. No additional information (e.g., underlying medical condition, demographics) is available. On average, there is a 15-day lag from death to report to CDC. Weekly mortality data from the 122 cities are compared to a seasonal baseline calculated using a robust regression procedure run on the previous 5 years of data. If the proportion of P&I deaths for a given week exceeds the baseline value for that week by a statistically significant amount, P&I deaths are said to be above the epidemic threshold, and the proportion of deaths above threshold are considered attributable to influenza. New Orleans, Baton Rouge and Shreveport are part of the reporting system. Data is analyzed by age group and city. Pediatric deaths associated with laboratory-confirmed influenza are notifiable in Louisiana.

II.14 Investigation of influenza like illness outbreaks

II.14.1 Long-term care facilities, day care facilities, schools and other institutional care facilities report outbreaks of diseases as mandated by the Sanitary code. These include gastro-enteric diseases, food borne outbreaks and upper /lower respiratory tract diseases.

II.14.1 Outbreak investigations of reported ILI clusters at long term care facilities and other institutions will be a collaborative effort between the Infectious Disease Epidemiology Section and the Immunization Program (*Guidelines for Pneumonia/Influenza Outbreaks or Clusters in Long Term Care Facilities*)

II.15 Case investigations of severe illness and deaths associated with influenza.

II.15.1 CDC Epi-X and other communications methods sustain a communication network with epidemiologists and public health laboratories that will be maintained to share information regarding the detection and circulation of novel influenza viruses

II.15.2 Reports of individual cases of severe illness and death will be investigated by regional Office of Public Health personnel, in collaboration with the Immunization Program and the Infectious Disease Epidemiology Section. Demographic case information and clinical history will be collected. Appropriate case investigation forms will be completed for pediatric deaths. Submission of laboratory specimens to DHH/OPH and CDC laboratories will be facilitated as necessary.

II.16 Epidemiologic Surveillance during the Pandemic Alert

II.16.1 The epidemiologic surveillance system will be enhanced. Novel influenza strains might include avian influenza viruses that can infect humans, other animal influenza viruses (such as swine influenza viruses), or new or re-emergent human influenza strains that cause outbreaks of human disease.

II.16.2 The main goal of Case Based Surveillance is to detect suspect cases of individual influenza-like illness that meet a specific set of criteria, confirm whether they are due to the novel pandemic strain of influenza virus and take appropriate control measures to limit the spread of infection.

Enhanced US Surveillance and diagnostic evaluation to identify cases of human infection with avian influenza A (H5N1)

Enhanced surveillance efforts by health departments, hospitals, and clinicians are needed to identify patients at increased risk for influenza A (H5N1).

Interim recommendations are as follows:

- Testing for avian influenza A (H5N1) is indicated for **hospitalized** patients with:
 - Radiographically confirmed pneumonia, acute respiratory distress syndrome (ARDS), or other severe respiratory illness for which an alternative diagnosis has not been established, **and**
 - **History of travel within 10 days** of symptom onset to a country with documented avian influenza A (H5N1) infections in poultry and/or humans.
- **or**
- Testing for avian influenza A (H5N1) should be considered on a case-by-case basis in consultation with state health department for **hospitalized or ambulatory** patients with:
 - Documented temperature of >100.4°F (>38°C); **and**
 - One or more of the following: cough, sore throat, or shortness of breath; **and**
 - **History of contact with poultry** (e.g., visited a poultry farm, a household raising poultry, or a bird market) **or a known or suspected human case** of influenza A (H5N1) **in an H5N1-affected country** within 10 days prior to onset of symptoms.

Figure 3: Enhanced US Surveillance and diagnostic evaluation to identify cases of human infection with avian influenza A (H5N1)

- II.16.3 The specific recommendations will depend on the epidemiology of the virus and the clinical characteristics of the human cases as they are known at the time, and will most likely focus on the following:
- II.16.3.1 Clinical characteristics such as severity of illness, hospitalization, or ambulatory patients who meet certain epidemiologic and clinical criteria,
 - II.16.3.2 Travel or residence history in area known to be a focus of pandemic influenza,
 - II.16.3.3 Exposure to population infected population groups, and
 - II.16.3.4 Influenza illness in spite of adequate prior immunization.
- II.17 Sentinel providers, Public Health investigators, Emergency Department staff and physicians will requested to report cases who meet these specific criteria.
- II.18 Reporting of individual cases will be done electronically using the Infectious Disease Reporting Information System (IDRIS) by creating new disease /conditions as necessary.
- II.19 The CDC will notify DHH/OPH of current recommendations via the Health Alert Network (HAN) and Epi-X. DHH/OPH will further distribute the recommendations to healthcare providers and will be responsible for receiving initial reports of potential cases in their jurisdictions.
- II.20 Example of recommendations issued for the 2005 H5N1 Avian flu strain:
- II.21 Epidemiologic Surveillance during the Pandemic
- II.21.1 The novel virus has been identified, human to human transmission is taking place, several outbreaks first in one country then outbreaks are spreading to other countries and eventually to all US states.
 - II.21.2 The incubation period averages two days. The affected individuals sheds viruses about one day before onset with viral shedding at the highest during the first two days of illness. On average there are two (or three) secondary infections as a result of transmission from one ill individual. A theoretical chain of transmission where one individual infects two others in two days and so on would result in 32,000 infections in one month, 2 millions in six weeks. In an affected community, a pandemic outbreak will last from six to eight weeks. A second pandemic wave is likely to follow the first one.
 - II.21.3 The assumption is that everyone will be susceptible to infection. The attack rate of annual influenza is about 10% but for a pandemic strain it would be 30%, ranging from 40% in children to 20% in working adults.

Fifty percent of affected individuals will seek medical care, with 1 to 10% requiring hospitalization depending on the severity of infection, 15% of hospitalization would require being in ICU. The assumption is that in Louisiana there would be:

Characteristic	Moderate Pandemic	Severe Pandemic
Illness	1,500,000 (30%)	1,500,000 (30%)
Outpatient Medicare	750,000 (50% of illness)	750,000 (50% of illness)
Hospitalization	15,000 (1% of illness)	150,000 (10% of illness)
ICU Care	2,250 (15% of hospitalization)	22,500 (15% of hospitalization)
Mech.ventilation	1,125 (50% of ICU Care)	11,250 (50% of ICU Care)
Death	3,750 (0.25% of illness)	37,500 (2.5% of illness)
Assumptions are based on extrapolation from past pandemics (DHHS Strategic Plan 2005, p18)		

Figure 4: Assumptions for Pandemic Influenza *The shift has moved from case based surveillance to community based surveillance.*

II.21.3.1 There are about 120 acute care hospitals in Louisiana with about 20,000 beds. Estimating that hospitalizations would be evenly spaced during the first wave (8weeks, about 50 days), a moderate pandemic would cause 300 hospitalization /day, a severe pandemic would cause 3,000 hospitalization /day (impossible to handle with only 20,000 beds).

II.21.3.2 Surveillance activities will be carried out on a regional basis by Regional Epidemiologists, Regional Disease Surveillance Specialists with support from Disease Investigation Specialists from the Sexually Transmitted Disease and Tuberculosis Control Programs. All data will be consolidated in the Infectious Disease Epidemiology Section.

II.22 Active surveillance of influenza-like illness (ILI) by Sentinel Providers Network

II.22.1 This surveillance will be enhanced by the participation of regional Office of Public Health personnel.

II.22.2 In case the sentinel physicians' offices are unavailable, surveillance may be limited to collection of data one day a week and extrapolation to a week. Disease Surveillance Specialists would use simplified data collection instruments and assist in the data collection.

II.22.3 Reporting from schools and nursing homes in the SPN will continue. School closures may make this data irrelevant. In addition school closures will be tallied.

II.22.4 Nursing homes, long term care facilities and other institutional care facilities will be asked to report outbreaks of ILI, number of hospitalizations or deaths.

II.23 Monitoring influenza-like illness (ILI) in hospitals

II.23.1 Hospitals will be instructed to code for the emergency department visits, a chief complaint of “Influenza-like illness” when appropriate. Thus the syndromic surveillance system will capture the emergency department visits and the proportion due to ILI.

II.24 Mortality monitoring

II.24.1 Hospitals and physicians will be required to report influenza deaths through the Infectious Diseases Reporting Information System. Pediatric influenza deaths are already a reportable condition. Health alerts will be sent out to recommend reporting all deaths due to influenza.

II.25 Investigation of influenza like illness outbreaks severe illness and deaths associated with influenza

II.25.1 Regional epidemiologists, Disease Surveillance Specialists, Disease Investigation Specialists and Immunization Consultants will participate in the investigations, collecting laboratory results, and completing investigation forms.

II.25.2 Outbreaks of influenza-like illness will be documented in “Epi-Stories”, a web based system used to track infectious cases of importance, clusters and outbreaks. These Epi-stories will then be summarized in an outbreak investigation database.

II.25.3 Cases of severe illness and deaths associated with influenza will be reviewed. Demographics, occupational, residential patterns will be evaluated. Any unusual patterns will be investigated.

II.26 Pre-vaccine Surveillance

II.26.1 When a pandemic begins, a vaccine may not yet be widely available until 6 months after the onset. By this time, a proportion of the population may have been infected, ill or even dead. In order to best target the population groups to immunize, it will be useful to have an estimate of attack rates in different population groups. In order to obtain these estimates, ad hoc surveys will be coordinated by the Infectious Disease Epidemiology Section and administered by regional Office of Public Health personnel. Population groups of interest will include:

- School children
- Elderly in nursing homes and other long term care facilities
- Health care providers
- Emergency staff responders

II.27 Post-vaccine Surveillance

II.27.1 Death certificates information will be checked against the Immunization Registry to identify fatalities that occurred among immunized individuals and delays between immunization and death.

II.27.2 The Vaccine Adverse Events Reporting System will also be used.

II.28 Veterinary surveillance

II.28.1 A pandemic influenza virus strain is likely to arise from re-assortment of animal and human influenza viruses. Therefore, coordination of surveillance with the U.S. Department of Agriculture (USDA) is critical, given USDA's responsibility to conduct influenza surveillance in domestic animals. The LA Department of Agriculture & Forestry (LDAF), Office of Animal Health Services State Veterinarian in close association with USDA Animal and Plant Health Inspection Service (APHIS) Veterinary Services (VS) is generally responsible for the development and implementation of surveillance programs that are consistent with the size and complexity of the resident commercial and backyard poultry industry. Establishing communication links between USDA APHIS VS, LDAF and DHH/OPH regarding avian and swine influenza surveillance is necessary to exchange information as a means to implement early identification and intervention measures. The USDA APHIS VS is monitoring for the presence of avian influenza viruses that may pose a threat to commercial poultry.

II.28.2 Testing for influenza in poultry and swine is conducted by the LA Department of Agriculture & Forestry and the respective industries. The requirement for the reporting of contagious (animal) diseases follows the protocol described in Title 7 XXI: §121. The plenary power to deal with contagious diseases of animals is within Title 3: chapter 16, Part 1: §2095. The State Veterinarian, as an employee and executive secretary of the Livestock Sanitary Board has plenary power to deal with any contagious disease involving animals.

II.28.3 If an animal owner, county agent, or veterinarian suspects a disease, they are required to report it within 24 hours by several means (phone, fax, email, etc). A list of diseases, including Highly Pathogenic Avian

Influenza (high path AI), is included in Title 7 XXI: §121. All public practice veterinarians, including state and federal, are trained at Plum Island to be foreign animal disease diagnosticians. They are trained to collect and submit samples to the National Veterinary Medical Disease Laboratory in Ames, IA if there is a high index of suspicion. If the sample is determined to be positive, the USDA APHIS VS area veterinarian in charge (AVIC) and the State Veterinarian would begin a unified command system. Quarantine measures would have been implemented and enhanced surveillance with testing would simultaneously occur. The USDA would be the lead agency in collaboration with the state in the operational management for the public health response to novel viruses identified in the animal population.

III. Laboratory Diagnostics

Role of the DHH/OPH Laboratory during the Interpandemic and Pandemic Alert Period

III.1 Laboratory support for seasonal influenza surveillance

III.1.1 The DHH/OPH Laboratory provides laboratory support for seasonal influenza surveillance in Louisiana. The goal of seasonal virologic surveillance is to provide laboratory confirmation of the first cases of influenza in regional areas to track influenza activity each season. To support seasonal influenza surveillance, the DHH/OPH Laboratory provides virologic testing for respiratory specimens submitted by physicians in the Sentinel Provider Network and by the DHH/OPH Infectious Epidemiology section for outbreak investigations. The DHH/OPH Laboratory provides influenza and respiratory virus testing throughout the year. Nasopharyngeal swab specimens are routinely tested by three methods: (1) detection of influenza virus types A or B by direct fluorescent antibody staining (DFA) of clinical specimens, (2) nucleic acid amplification detection of influenza virus types A or B, with influenza A subtyping for H1, H3 and H5 by real time reverse transcriptase polymerase chain reaction (RT-PCR), and (3) commercially available rapid test for Influenza A and B. The Rapid test, DFA and RT-PCR test results can be completed on the same day that the specimen is received.

III.1.2 At this time, the DHH/OPH Laboratory is not able to perform virus culture due to the lack of a BSL-3 laboratory. All specimens will be sent to the CDC if further testing is required.

III.1.3 Final DHH/OPH laboratory results of influenza testing are reported by mail to the specimen submitter and to Louisiana Office of Public Health Infectious Epidemiology section. For outbreak investigations, positive DFA or RT-PCR results are faxed to the submitter, usually on the same day the specimen is received at DHH/OPH Laboratory. During influenza

season, the DHH/OPH Laboratory also provides results to the Statewide Influenza Coordinator in the DHH/OPH Immunization section. The DHH/OPH Laboratory is currently implementing its laboratory information system (STARLIMS). Once STARLIMS is implemented, results will be electronically reported to the above mentioned DHH/OPH sections and to the submitter.

III.2 Laboratory Testing for Novel Influenza Subtypes

- III.2.1 During the pandemic alert period, if a patient meets the current CDC and DHH/OPH clinical and epidemiological criteria for possible infection by a novel influenza subtype, clinical specimens may be submitted to the DHH/OPH Laboratory for testing. It is essential that the health care provider contact the state epidemiologist and the DHH/OPH Laboratory to assure appropriate specimen collection, transport, and testing. Specimens must be identified as “test for novel influenza” to ensure that the necessary level of biosafety is used and that appropriate testing is performed.
- III.2.2 At the present time, the DHH/OPH Laboratory performs real time reverse transcription polymerase chain reaction (RT-PCR) to detect and subtype influenza virus in direct specimens but does not have the biocontainment level (BSL-3 with enhancements) needed to culture novel influenza subtypes. Therefore, a clinical specimen from a patient suspected of infection with a novel influenza subtype would be screened by real time RT-PCR for influenza viruses A and B, and for influenza A subtypes H1 and H3 (the currently circulating subtypes of human influenza virus) and subtype H5 (the avian subtype involved in the current epizootic among poultry in Asia). This method can provide results on the same day the specimen is received at the DHH/OPH Laboratory. Testing at the DHH/OPH Laboratory for other influenza A subtypes such as H7 will be added as positive control material is made available to the state public health laboratories by CDC or other federal partners.
- III.2.3 If a clinical specimen were to test positive at the DHH/OPH Laboratory by real time RT-PCR for a novel influenza subtype, the results would immediately be reported to the DHH/OPH Infectious Epidemiology section. The specimen would then be forwarded to CDC for viral culture and confirmatory testing. If the specimen tested positive for one of the currently circulating seasonal influenza viruses, then the Office of Public Health Infectious Epidemiology section will be notified and routine testing of the specimen will proceed. If the specimen tests negative for influenza viruses A and B by RT-PCR, then the need for additional testing will be determined in consultation with the DHH/OPH Infectious Epidemiology section.

III.3 Laboratory planning to support the response to an influenza pandemic Detection and characterization of novel influenza strains

III.3.1 The DHH/OPH Laboratory has incorporated real time RT-PCR testing into its standard influenza laboratory testing activities, using methods posted on the Association of Public Health Laboratories (APHL) website. Current DHH/OPH Laboratory methods detect influenza A or influenza B, and identify influenza A subtypes H1, H3 or H5 directly from clinical specimens (such as nasopharyngeal swabs submitted in M4RT viral transport medium). Testing for other novel influenza A subtypes such as H7 will be made available at the DHH/OPH Laboratory when procedures and positive control materials are released by federal partners and test performance is validated at the DHH/OPH Laboratory. The DHH/OPH Laboratory will continue to evaluate and develop new laboratory methods to detect and characterize influenza virus as opportunities present. At this time, a positive RT-PCR result for a novel influenza A subtype such as H5 would be considered presumptive, pending culture and confirmation at CDC. The DHH/OPH Laboratory will work with the DHH/OPH Infectious Epidemiology section to provide healthcare providers, hospitals, and clinical laboratories within Louisiana the information on how to contact the DHH/OPH Laboratory when a novel influenza subtype is suspected; how to handle, label, and ship clinical specimens for diagnostic evaluation from these cases; and how to notify the Office of Public Health.

III.3.2 The DHH/OPH Laboratory will work to identify and contact other laboratories in Louisiana which may conduct influenza testing or culture influenza viruses (e.g. research, veterinary, agricultural, or private industry laboratories) to provide information about the guidelines in the national and state pandemic influenza plans, especially the need for biocontainment, medical surveillance of laboratory personnel, and how and when to report situations to the DHH/OPH and to the DHH/OPH Laboratory.

III.4 Laboratory reporting

III.4.1 The DHH/OPH Laboratory would report cases of novel influenza immediately to the DHH/OPH Infectious Epidemiology section and to CDC via the Emergency Response Hotline.

III.4.2 The DHH/Office of Public Health Laboratory planning for pandemic influenza will include electronic reporting of influenza results to above mentioned Office of Public Health sections and submitters as the DHH/OPH Laboratory implements its laboratory information system (STARLIMS).

III.5 Distribution of diagnostic reagents and test information

III.5.1 The DHH/Office of Public Health Laboratory and other state public health laboratories remain dependent on federal partners such as CDC to address any regulatory barriers to emergency distribution and use of diagnostic tests and reagents during a pandemic. The responsibility of the DHH/OPH Laboratory is to stay updated about upcoming test information and to position the DHH/OPH laboratory resources so that as soon as a new procedure or critical reagent is released by the CDC, the DHH/OPH Laboratory can begin validation studies and rapid implementation of diagnostic testing at the state level.

III.6 Laboratory surge capacity planning

III.6.1 The DHH/Office of Public Health Laboratory will assess the projected statewide needs for scaled-up diagnostic activity during the early stages of a pandemic and develop strategies to meet those needs as effectively as possible. The DHH/OPH Laboratory will work with the DHH/OPH to estimate testing needs for Louisiana, and to establish proposed goals for testing priorities, so that limited resources will be targeted toward testing the specimens most important for public health planning (e.g. to identify the first cases, or to verify regional spread of the pandemic strain within the state). The DHH/OPH Laboratory will also plan with the DHH/OPH to create proposed trigger points for making changes in the testing algorithm (e.g. the point at which the pandemic strain is circulating so widely that influenza testing at the state public health lab should be cut back to more routine surveillance support activities). The DHH/OPH Laboratory will estimate the surge capacity needed for staff and training, supplies/equipment, and specimen management, develop strategies to address these needs, and track progress toward implementation of this surge capacity plan.

III.7 Partnerships with healthcare providers and clinical laboratories

III.7.1 The DHH/OPH Laboratory will continue to build partnerships with healthcare providers within Louisiana, including the physicians who participate in the Sentinel Provider Network during the regular influenza season.

III.7.2 The DHH/OPH Laboratory will continue to build partnerships with clinical laboratories within Louisiana and provide laboratories with updated information as it becomes available. The DHH/OPH Laboratory Bioterrorism Coordinator will be a liaison from DHH/OPH Laboratory to the clinical and local public health laboratories. The DHH/OPH Laboratory maintains a contact list for clinical laboratories throughout Louisiana, and when necessary can distribute updated information by

BLAST FAX, email, letter, and/or posting on the DHH/OPH Laboratory website.

III.8 Role of DHH/OPH Laboratory during the Pandemic Period

III.8.1 Laboratory support for disease surveillance

III.8.1.1 During a pandemic, the goals of virologic surveillance are to:

- Rapidly detect the introduction and early cases of a pandemic influenza in the United States
- Track the introduction of the virus into local areas
- Monitor changes in the pandemic virus, including development of antiviral resistance

III.8.1.2 The DHH/OPH Laboratory will provide laboratory support for pandemic influenza surveillance through the same mechanisms that support laboratory-based surveillance for seasonal influenza except that the testing algorithms may be modified due to biosafety considerations or the need to target limited resources toward testing required for public health decisions. RT-PCR methods currently performed at the DHH/OPH Laboratory can detect influenza A or influenza B virus and identify the influenza A subtypes H1, H3, and H5. According to the HHS national pandemic influenza plan, as soon as a pandemic strain of influenza virus has been identified, CDC's Influenza Laboratory will develop, produce, and disseminate the necessary RT-PCR and IFA reagents to state public health laboratories such as the DHH/OPH Laboratory. If necessary, CDC and APHL will also update the RT-PCR protocol currently available to public health laboratories through the APHL website. When the diagnostic procedures and reagents are made available by CDC to the state public health laboratories, the DHH/OPH Laboratory will validate and implement RT-PCR testing specifically for the pandemic strain. During the time period before CDC would be able to provide pandemic strain specific reagents to the state public health laboratories, the DHH/OPH Laboratory would continue to test for the influenza A virus subtypes for which reagents are already available. Such testing would provide rapid test results to identify infections with an influenza A virus other than one of the subtypes in the current testing battery, and would thus alert surveillance to the probable presence of a

novel influenza subtype. The exact subtype would not be identified until further testing could be performed at CDC.

- III.8.1.3 When a pandemic first begins, laboratory testing to confirm the new subtype will be required. The most intense testing will be during the early stages of the pandemic when the primary goal is to verify whether the new virus has been introduced into the state or community. Once the virus has been identified throughout the state, the level of laboratory testing can be decreased to a level more like that of a non-pandemic influenza season. CDC will provide guidelines on when confirmatory testing (i.e. subtyping of influenza A virus) is required. The DHH/OPH Infectious Epidemiology section will work with the DHH/OPH Laboratory to determine the level of testing needed within Louisiana, and to help prioritize laboratory testing needs. At the beginning of a pandemic, it will be critical that public health needs are met by appropriately prioritizing specimen submissions and testing at the DHH/OPH Laboratory; otherwise, the surge of specimens might rapidly deplete limited and valuable reagents. Prioritization decisions will require input from the DHH/OPH Infectious Epidemiology section about data needed for public health decisions and from the DHH/OPH Laboratory about the supply inventory, consumption of supplies, and availability of laboratory personnel.
- III.8.1.4 As the pandemic continues, the DHH/OPH Laboratory will follow CDC guidance to the states on the percentage of isolates/specimens per week or month that the state public health laboratories should send to CDC to help monitor changes in the antigenicity and antiviral susceptibility of the pandemic virus. Throughout the pandemic, CDC will provide updated instructions on the collection of clinical and epidemiologic data that should accompany isolates/specimens. The DHH/OPH Infectious Epidemiology section will work with the DHH/OPH Laboratory to create a mechanism by which this data will accompany isolates submitted by the DHH/OPH Laboratory to CDC. The DHH/OPH Laboratory is currently positioned to be able to provide RT-PCR screening before sending specimens to CDC, if reagents and procedures are made available for the pandemic strain.

III.8.2 Laboratory support for clinicians

- III.8.2.1 When a pandemic begins, public health and clinical laboratories will need to manage increased numbers of requests for influenza testing. CDC will work with state public health laboratories and the LRN to provide clinical laboratories with guidelines for safe handling, processing, and rapid diagnostic testing of clinical specimens from patients who meet the case definition of pandemic influenza. The DHH/OPH Laboratory will provide clinical laboratories within Louisiana with these CDC guidelines using the mechanisms created by Emergency Preparedness and Response (EP&R) planning such as BLAST FAX, email, letter, or website posting. Guidance will be provided to clinicians about the case definition of pandemic influenza and which subset of patients should have specimens sent to the DHH/OPH Laboratory for pandemic influenza testing. The DHH/OPH Laboratory will provide local healthcare providers with specimen submission forms that specify the clinical and epidemiologic data that should accompany specimens sent to the DHH/OPH Laboratory for pandemic influenza testing.
- III.8.2.2 For pandemic influenza, the DHH/OPH Laboratory will have to plan, implement, and test methods for rapid communication of both positive and negative results to the submitter, to the DHH/OPH Infectious Epidemiology section, and to the Statewide Influenza Coordinator. Result reports will include the reminder that a negative test result may not rule out influenza and should not affect patient management or infection control decisions.
- III.8.2.3 The DHH/OPH Laboratory will provide information for clinicians on the use and interpretation of commercially available rapid diagnostic tests for the detection of influenza during a pandemic, including the CDC guidance provided in the HHS national pandemic influenza plan.
- III.8.2.4 As the pandemic continues, the DHH/OPH will provide local healthcare providers with updated guidance on which clinical specimens should be sent to the DHH/OPH Laboratory for testing as the needs for public health testing evolve.

III.8.3 Biocontainment procedures

- III.8.3.1 Biosafety conditions for safely testing specimens which may contain a novel or pandemic influenza virus are more stringent than those needed for routine testing of specimens which may contain the currently circulating seasonal influenza strains. Biosafety guidelines for handling or processing specimens or isolates of novel influenza strains are provided in the HHS national pandemic influenza plan. Briefly, testing for influenza using either commercial antigen detection assays such as EIA or nucleic acid amplification by RT-PCR can be conducted under BSL-2 containment conditions if a Class II Biological safety cabinet is used. Virus culture should not be performed except within a BSL-3 laboratory with enhancements. In addition, culture of any novel influenza virus should be kept separate from laboratory areas where seasonal influenza A viruses (i.e. H1 and H3) are cultured. Therefore, respiratory virus cultures from specimens which may contain a novel influenza virus should not be performed in most clinical laboratories. Moreover, highly pathogenic avian influenza A (H5) and A (H7) viruses are classified as select agents and any laboratory working with these agents must be certified by the USDA.
- III.8.3.2 The DHH/OPH Laboratory currently has BSL-2 laboratories. We are in the process of establishing a BSL-3 laboratory at the Shreveport Regional Laboratory. The DHH/OPH Laboratory is registered with the CDC and USDA to handle select agents. At the present time, the DHH/OPH Laboratory testing for novel influenza subtypes is by real time RT-PCR, but not by virus culture. At the DHH/OPH Laboratory, storage of these specimens and processing to prepare nucleic acid extracts is performed in the BSL-2 laboratory. The DHH/OPH Laboratory testing for novel influenza will be limited to RT-PCR with confirmatory testing and virus culture done at CDC.
- III.8.3.3 The DHH/OPH Laboratory will work with clinical and other laboratories in Louisiana to assure that they are aware of the national biocontainment guidelines for specimens from any patient who may be infected with a novel influenza virus and of the need to review their laboratory protocols to assure laboratory safety during the current novel virus alert phase and during a possible pandemic.

III.8.4 Occupational health issues for laboratory workers

- III.8.4.1 At all times (i.e. during the Interpandemic, Pandemic Alert, and Pandemic Periods), laboratories handling specimens that possibly contain a novel influenza virus need to maintain safety practices to protect the health of laboratory workers. These safety practices include: (1) conducting laboratory procedures under appropriate biocontainment conditions, as described in the national pandemic influenza plan (2) encouraging routine influenza vaccination of all eligible laboratory personnel who are exposed to specimens from patients with respiratory infections; and (3) providing medical surveillance and follow-up for laboratory personnel who work with novel strains of influenza virus, following the national guidelines provided in the national pandemic influenza plan. Medical surveillance of laboratory personnel at risk for occupational exposure to novel influenza viruses is important for the benefit of the individual worker and is essential to prevent transmission to other individuals within the community in the event of a laboratory-acquired infection.
- III.8.4.2 Within the DHH/OPH Laboratory, the Laboratory Safety Officer will work with the DHH/OPH Laboratory administration and the laboratory manager of the virology section to perform risk assessment for novel influenza virus testing and to ensure compliance with national biosafety guidelines in the current national plan and as updated by CDC.
- III.8.4.3 It is important to note that the guidelines for biocontainment and for medical surveillance of laboratory personnel apply to any laboratory which may handle or culture specimens containing novel or avian influenza viruses. Such laboratories would include not only the clinical and public health laboratories traditionally included within the Laboratory Response Network (LRN), but also research, university, veterinary, agricultural, or private industry laboratories that may not be easily reached via routine public health communications. Therefore, the DHH/OPH Laboratory will work to identify such laboratories within Louisiana, to set up a means for the laboratory to receive public health communications, and to provide those laboratories with information about the national guidelines, how to contact the DHH/OPH if possible exposure has occurred, and how to contact the

DHH/OPH Laboratory for influenza subtype testing when indicated for evaluation of novel influenza illness in an exposed employee.

III.9 Recommendations for Clinical and Other Laboratories - *During Interpandemic and Pandemic Alert Periods*

III.9.1 Biosafety recommendations for all laboratories which handle influenza virus or specimens (human or animal) which may contain influenza virus (e.g. research, university, veterinary, agricultural, industry, military, hospital/other clinical, and public health laboratories)

III.9.1.1 Review the laboratory biosafety portions of the HHS National Pandemic Influenza Plan (www.pandemicflu.gov) within the Laboratory Diagnostics section (Supplement 2): (1) Biocontainment procedures and (2) Occupational health issues for laboratory workers.

III.9.1.2 Perform a risk assessment for influenza biosafety within the laboratory. Create a laboratory specific plan to meet the pertinent HHS guidelines for biosafety and occupational health.

III.9.1.3 If the laboratory handles human or animal specimens which may contain any influenza virus not currently circulating in humans, ensure that the biosafety plan also includes the following:

- CDC and DHH/OPH website addresses to obtain updated influenza information
- Contact numbers for the state health departments to obtain or report information about novel influenza virus
- Contact numbers for the DHH/OPH Laboratory to obtain laboratory specific information.

III.9.1.4 Review any federal or state regulations or guidelines which apply to influenza agents or nucleic acids used within or shipped by the laboratory. Examples may include: transport of infectious materials, HHS select agents, USDA select agents, federal recombinant DNA guidelines, CDC Biosafety in Microbiological and Biomedical Laboratories (BMBL) 4th Edition, and the Louisiana Regulations for Disease Reporting .

III.10 Diagnostic testing recommendations for clinical and public health laboratories which process human specimens for influenza testing.

- III.10.1 Review the HHS national pandemic influenza plan (www.pandemicflu.gov), especially the Laboratory Diagnostics section (Supplement 2).
- III.10.2 Use the national and state guidelines to create a laboratory-specific pandemic influenza plan, including plans for the current pandemic alert period. Key actions include the following:
 - III.10.2.1 If a novel influenza virus infection is suspected, the laboratory should contact the Office of Public Health Infectious Epidemiology section and the Office of Public Health Laboratory to arrange for novel influenza virus testing. The hospital laboratory should NOT attempt virus isolation.
 - III.10.2.2 It is essential that the laboratory be informed if clinical specimens are submitted from a patient suspected of novel influenza virus infection, to assure safe biocontainment and appropriate testing. Establish clear lines of communication with medical staff and infection control to be implemented if a novel influenza virus is suspected.
 - III.10.2.3 Review procedures for communication, specimen collection, and transport to the DHH/OPH Laboratory for novel influenza virus testing.
 - III.10.2.4 Plan for laboratory surge capacity in the event of an influenza pandemic, including issues of staffing/training, laboratory supplies/equipment, and specimen management, including an increase in specimens sent to the DHH/OPH Laboratory at the beginning of the pandemic. Be aware that during a pandemic, many individuals may not be able to report to work and the quantity of many supplies may become quite limited.
 - III.10.2.5 Implement and exercise the laboratory pandemic influenza plan.
- III.11 Recommendations for Clinical and Other Laboratories - *During the Pandemic Period*
 - III.11.1 Review and update biosafety precautions based on CDC and DHH/OPH recommendations and risk assessment within each individual laboratory.

- III.11.2 Deploy resources to manage increased numbers of requests for influenza testing and for laboratory support for an increased number of patient visits related to respiratory disease.
- III.11.3 Communicate freely with the state health department and stay updated about current recommendations related to pandemic influenza.
- III.11.4 Follow public health guidelines to submit selected specimens to the DHH/OPH Laboratory for pandemic influenza testing. During the early phase of an influenza pandemic, any private laboratory which performs RT-PCR testing for the pandemic influenza strain should consult with the DHH/OPH Laboratory to arrange to have their results confirmed by the DHH/OPH Laboratory and/or CDC.
- III.11.5 Provide guidance to physicians about interpretation and limitations of influenza laboratory tests, particularly the commercially available rapid diagnostic tests.

III.12 Specimen Collection and Submission Guidelines

III.12.1 Acceptable Specimens

- Throat washing (higher preference if Avian influenza is suspected)
- Throat swab (higher preference if Avian influenza is suspected)
- Nasopharyngeal swab
- Nasal washing
- Nasal swab

III.13 Collection Procedures

- III.13.1 Dacron swabs with a plastic or metal shaft should be used. Do not use calcium alginate or wooden shafted swabs as they may contain substances that inactivate some viruses and/or inhibit PCR amplification
- III.13.2 Throat washing: Patient should gargle with 3-5 ml of sterile PBS (0.15M Sodium chloride and 0.01 M Sodium phosphate pH 7.0-7.6). The PBS should be placed in a sterile vial containing 2.0 ml of M4RT viral transport medium. The cap should be screwed on tightly to avoid contamination and leakage.
- III.13.3 Throat swab: Vigorously rub the posterior wall of the pharynx with a sterile, dry Dacron swab. The swab should not touch the tongue or buccal mucosa. Break the swab tip into a sterile vial containing

2.0 ml of M4RT viral transport medium. Screw the cap on tightly to avoid contamination and leakage.

III.13.4 Nasopharyngeal swab: Carefully insert a dry sterile Dacron swab through external nares to obtain access to posterior nasopharyngeal area. Vigorously rub the area and gently retrieve the swab. Break of the swab tip into a sterile vial containing 2.0 ml of M4RT viral transport medium. Screw the cap on tightly to avoid contamination and leakage.

III.13.5 Nasal washing: Aspirate 3-7 ml of sterile PBS into the rubber bulb. The patient should be leaning back or in supine position. Press on one nostril to close with finger pressure. Insert the tip of the bulb in the other nostril and completely occlude the other side. Squeeze PBS into to the nose and quickly aspirate. Place the secretion into a sterile vial. Screw the cap on tightly to avoid contamination and leakage.

III.13.6 Nasal swab: Insert a dry sterile Dacron swab into nasal passage. Allow it to absorb secretion. Break of the swab tip into a sterile vial containing 2.0 ml of M4RT viral transport medium. Screw the cap on tightly to avoid contamination and leakage

III.14 Requesting Influenza Testing

III.14.1 The patient health care provider must complete the specimen submission form (lab 96) to request Influenza testing. The Lab 96 form is available from your local public health unit or by calling 985-748-2011 to have a copy of the form faxed to you. Please fill out all forms as completely as possible with the following information or the specimen may be considered UNSATISFACTORY for testing:

- Name of the patient
- Date of collection
- Date of onset of symptoms
- Submitter's address
- Unique ID or Hospital ID
- Epidemiologic risk factor
- Travel history
- Specify on the form that Influenza testing is requested. This should be handwritten in "other" category.

III.15 Shipping Instructions

III.15.1 Any suspect influenza specimen should be shipped as a diagnostic specimen. The shipper (hospital, clinic, or parish health unit) – not the transport company – is responsible for the shipment until the reaches the consignee (DHH/OPH Laboratory). The specimen can be shipped via FedEx, United State Postal Service (USPS) or the State Courier system. The specimen should be shipped by the fastest means possible. Transportation time of less then 24 hours will optimize virus detection and amplification. All specimens should be shipped to the Amite Regional Laboratory.

Amite Regional Laboratory
104 A North First Street
Amite, La. 70422
Phone # 985-748-2011
Fax # 985-748-2031

III.15.2 When submitting a routine influenza specimen, there is no need of prior notification. However, the DHH/OPH Laboratory must be notified in advance when a specimen from a suspected novel or avian influenza case will be arriving at the Laboratory. When a suspected novel or avian influenza specimen is received in the lab, the following internal staff should be notified verbally or by phone, email, or page: Laboratory Director, Laboratory Assistant Director, Laboratory Bioterrorism Coordinator, Virology Immunology Manager and Virology Supervisor.

V. **Infection Control - Guidelines for Prevention and Control of Pandemic Influenza A in Healthcare Institutions**

V.1 Background

V.1.1 When a pandemic begins, a vaccine may not yet be widely available, and the supply of antiviral drugs may be limited. The ability to limit transmission in healthcare settings will, therefore, rely heavily on the appropriate and thorough application of infection control measures.

V.2 Transmission

V.2.1 Influenza is spread from person to person by

- Inhalation of small particle aerosols (droplet nuclei of $<5 \mu$) = Airborne transmission
- Inhalation of large droplets (5-100 μ) = Droplet transmission

- Direct contact or contact with articles recently contaminated by nasopharyngeal secretions

V.2.2 Despite the prevalence of influenza year after year, most information on the modes of influenza transmission from person to person is indirect and largely obtained through observations during outbreaks in healthcare facilities and other settings (e.g., cruise ships, airplanes, schools, and colleges); the amount of direct scientific information is very limited. However, the epidemiologic pattern observed is generally consistent with spread through close contact (i.e., exposure to large respiratory droplets, direct contact, or near-range exposure to aerosols). While some observational and animal studies support airborne transmission through small particle aerosols, there is little evidence of airborne transmission over long distances or prolonged periods of time (as is seen with *M. tuberculosis*). The relative contributions and clinical importance of the different modes of influenza transmission are currently unknown.

V.3 Droplet transmission

V.3.1 Droplet transmission involves contact of the conjunctivae or the mucous membranes of the nose or mouth of a susceptible person with large-particle droplets containing microorganisms generated from a person who has a clinical disease or who is a carrier of the microorganism. Droplets are generated from the source person primarily during coughing, sneezing, or talking and during the performance of certain procedures such as suctioning and bronchoscopy. Transmission via large-particle droplets requires close contact between source and recipient persons, because droplets do not remain suspended in the air and generally travel only short distances (about 3 feet) through the air. Because droplets do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission. Based on epidemiologic patterns of disease transmission, large droplet transmission has been considered a major route of influenza transmission. However, data directly demonstrating large droplet transmission of influenza in human outbreaks is indirect and limited.

V.4 Contact transmission

V.4.1 Direct-contact transmission involves skin-to-skin contact and physical transfer of microorganisms to a susceptible host from an infected or colonized person, such as occurs when personnel turn patients, bathe patients, or perform other patient-care activities that require physical contact. Direct-contact transmission also can occur between two patients (e.g., by hand contact), with one serving as the source of infectious microorganisms and the other as a susceptible host. Indirect-contact

transmission involves contact of a susceptible host with a contaminated intermediate object, usually inanimate, in the patient's environment. Contact transmission of influenza may occur through either direct skin-to-skin contact or through indirect contact with virus in the environment. Transmission via contaminated hands and fomites has been suggested as a contributing factor in some studies. However, there is insufficient data to determine the proportion of influenza transmission that is attributable to direct or indirect contact.

V.5 Airborne transmission

V.5.1 Airborne transmission occurs by dissemination of either airborne droplet nuclei or small particles in the respirable size range containing the infectious agent. Microorganisms carried in this manner—such as *M. tuberculosis*—may be dispersed over long distances by air currents and may be inhaled by susceptible individuals who have not had face-to-face contact with (or been in the same room with) the infectious individual. Organisms transmitted in this manner must be capable of sustaining infectivity, despite desiccation and environmental variation that generally limit survival in the airborne state. Preventing the spread of agents that are transmitted by the airborne route requires the use of special air handling and ventilation systems (e.g., negative pressure rooms). The relative contribution of airborne transmission to influenza outbreaks is uncertain. Evidence is limited and is principally derived from laboratory studies in animals and some observational studies of influenza outbreaks in humans, particularly on cruise ships and airplanes, where other mechanisms of transmission were also present. Additional information suggesting airborne transmission was reported in a Veterans Administration Hospital study that found lower rates of influenza in wards exposed to ultraviolet radiation (which inactivates influenza viruses) than in wards without UV radiation. Another study indicated that humidity can play a role in the infectivity of aerosolized influenza, although the influence of humidity on the formation of droplet nuclei was not evaluated.

V.6 Small-particle aerosols.

V.6.1 There is no evidence that influenza transmission can occur across long distances (e.g., through ventilation systems) or through prolonged residence in air, as seen with airborne diseases such as tuberculosis. However, transmission may occur at shorter distances through inhalation of small-particle aerosols (droplet nuclei), particularly in shared air spaces with poor air circulation. An experimental study involving human volunteers found that illness could be induced with substantially lower virus titers when influenza virus was administered as a small droplet aerosol rather than as nasal droplets, suggesting that infection is most efficiently induced when virus is deposited in the lower rather than the

upper respiratory tract. While this study supports the possibility of droplet nuclei transmission of influenza, the proportion of infections acquired through droplet nuclei—as compared with large droplet or contact spread—is unknown. It is likely that some aerosol-generating procedures (e.g., endotracheal intubation, suctioning, nebulizer treatment, bronchoscopy) could increase the potential for dissemination of droplet nuclei in the immediate vicinity of the patient. (Although transmission of SARS-CoV was reported in a Canadian hospital during an aerosol-generating procedure [intubation], it occurred in a situation involving environmental contamination with respiratory secretions.) Although this mode of transmission has not been evaluated for influenza, additional precautions for healthcare personnel who perform aerosol-generating procedures on influenza patients may be warranted

V.7 Other infection site

V.7.1 The cellular pathogenesis of human influenza indicates that infection principally takes place within the respiratory tract. While conjunctivitis is a common manifestation of systemic influenza infection, the ocular route of inoculation and infection has not been demonstrated for human influenza viruses. This may not be true with certain avian species of influenza (e.g., H7N7) that have been associated primarily with conjunctivitis in humans.¹ This information suggests that preventing direct and indirect inoculation of the respiratory tract is of utmost importance for preventing person-to-person transmission when caring for infectious patients.

V.8 Communicability

V.8.1 The period of greatest communicability of inter-pandemic influenza is the first three days of illness but the virus can be shed before onset of symptoms and up to seven or more days after illness. It is possible that more prolonged shedding could occur with pandemic influenza since the immune system would not have prior experience with related strains. It is also possible that prolonged shedding can occur in young children and immuno-deficient patients. Therefore, all influenza specific bed management measures should be maintained for at least 7 days after onset of illness or longer if symptoms persist.

V.9 Epidemiologic patterns

V.9.1 During community outbreaks of influenza, the highest attack rates tend to occur among school-age children. Secondary spread to adults and other children within the family is common. The attack rates depend in part on immunity developed by previous experience (either by natural disease or immunization) with the circulating strain or a related strain. Antigenic

shift, reassortment in an animal host, or major drift in the circulating strain may result in widespread epidemics or even pandemics.

- V.9.2 In temperate climates, seasonal epidemics usually occur during the winter months and, within a community, peak within 2 weeks of onset and last 4 to 8 weeks or longer. However, isolated outbreaks may occur year-round. Activity of more than one type or subtype of influenza virus in a community may be associated with a prolongation of the influenza season to 3 months or more. Influenza is highly contagious, especially among institutionalized populations. Patients are most infectious during the 24 hours before the onset of symptoms and during the most symptomatic period, which generally lasts 3-5 days after the onset of illness. Detectable viral shedding in the nasal secretions usually ceases within 7 days of the onset of illness but can be prolonged in young children and immunodeficient patients.
- V.9.3 During community influenza outbreaks, admitting patients infected with influenza to hospitals has led to nosocomial transmission of the disease. Unimmunized healthcare workers and visitors can also contribute to nosocomial influenza spread in acute care hospitals and long-term facilities. Transmission of influenza among medical staff causes absenteeism and considerable disruption of health care. In addition, influenza outbreaks have caused morbidity and mortality in nursing homes. In a recent study of long-term care facilities with uniformly high patient influenza vaccination levels, patients in facilities in which greater than 60% of the staff had been vaccinated against influenza experience less influenza-related mortality and illness, compared with patients in facilities with no influenza-vaccinated staff. Further information and updates on influenza can be found at www.cdc.gov/ and www.apic.org/.
- V.9.4 Infection control practices both in the community and in healthcare settings will present special challenges in the event of a pandemic. Influenza virus is highly contagious and persons who are clinically or subclinically infected can transmit virus to persons at high risk for influenza complications. Preventing and controlling nosocomial infection will be an important factor in reducing the spread of influenza in a pandemic. Measures other than vaccination and chemo-prophylaxis are recommended for controlling nosocomial influenza outbreaks. These measures include interventions for preventing and controlling nosocomial influenza through prompt recognition, detection, isolation and cohorting of confirmed and suspected cases, and implementation of droplet precautions.

V.10 Control of influenza transmission in healthcare facilities

V.10.1 Outbreaks of influenza have been prevented or controlled through a set of well established strategies that include

- V.10.1.1 Routine infection control practices: use of appropriate barrier precautions during patient care, as recommended for Standard and Droplet Precautions;
- V.10.1.2 Early detection of influenza cases in a facility;
- V.10.1.3 Isolation of infectious patients in private rooms or cohort units;
- V.10.1.4 Vaccination of patients and healthcare personnel;
- V.10.1.5 Use of antivirals to treat ill persons and, if recommended, as prophylaxis;
- V.10.1.6 Restricting visitors,
- V.10.1.7 Education of patients and staff,
- V.10.1.8 Cohorting healthcare workers assigned to an outbreak unit.

These are the primary infection control measures recommended in this plan.

V.11 General Principles of Routine Infection Control

V.11.1 The Society for Healthcare Epidemiology of America (SHEA) states three goals for infection control and prevention programs:

1. Protect patients,
2. Protect healthcare workers,
3. Protect visitors, and others in the healthcare environment;

V.11.2 This should be accomplishing the previous two goals in a cost-effective manner, whenever possible. These goals are germane to any patient care setting including acute care hospitals, long term care facilities, nursing homes, ambulatory care centers, out-patient surgical facilities, rehabilitation centers, alternative care centers, and home-care programs. Each type of health care organization may employ a different means of achieving these goals based on their needs, circumstances, and federal, state, and local regulations.

- V.11.3 CDC and the Healthcare Infection Control Practices Advisory Committee (HICPAC) have developed guidelines on prevention of nosocomial/healthcare associated infections that are based on the latest epidemiologic information on transmission of infection in hospitals. These guidelines include "Standard Precautions" that are to be followed when caring for all patients, regardless of their diagnosis, and "Transmission Based Precautions" to be followed when a patient is known or suspected to be infected or colonized with an epidemiologically important pathogen, such as influenza virus.
- V.12 Standard Precautions address the importance of hand washing before and after caring for a patient; use of gloves, masks, eye protection, face shields, and gowns when splashes or sprays of blood, body fluids, secretions or excretions are possible; cleaning of patient-care equipment, the patients physical environment, and soiled linen; precautions to reduce the possibility of healthcare worker exposure to blood borne pathogens; and patient placement.
- V.13 Transmission Based Precautions describe infection control measures, above and beyond Standard Precautions, that should be taken based on the mode of transmission of the pathogen causing infection. There are three routes of transmission that play a significant role in nosocomial infections: contact, droplet, and airborne. All of these routes of transmission are relevant to influenza, especially droplet and airborne transmission, as mentioned above, and should be incorporated into influenza control, including during a pandemic. Further details regarding Standard Precautions and Transmission Based Precautions can be found in the "Guideline for Isolation Precautions in Hospitals" .
- V.14 Contact Transmission, the most frequent mode of transmission of nosocomial infections, occurs when there is direct body surface-to-body surface contact and transfer of microorganisms from an infected or colonized person to a susceptible host or when a susceptible host comes in contact with a contaminated intermediate object such as a health care workers' hands or a contaminated instrument. If the pandemic virus is associated with diarrhea, contact precautions (i.e., gowns and gloves for all patient contact) should be added.
- V.15 Droplet Transmission occurs when an infected person generates large droplets containing microorganisms by talking, coughing, or sneezing and these droplets move through the air and come in contact with a susceptible host's conjunctivae, nasal mucosa, or mouth. When caring for patients with suspected or confirmed influenza, droplet precautions should be followed. Patients with known or suspected pandemic influenza should be placed on droplet precautions for a minimum of 5 days from the onset of symptoms. Because immunocompromised patients may shed virus for longer periods, they may be placed on droplet precautions for the duration of their illness. Healthcare personnel should wear appropriate PPE.

- V.16 Airborne Transmission is similar to droplet transmission but in this case, the particles from the infected or colonized person are much smaller and therefore can remain in airborne for long periods of time and can be widely carried by air currents to susceptible hosts some distance away.
- V.17 Elements of routine infection Control
- V.17.1 Hand Washing - Decreasing the risk of transmission of microorganisms in health care settings, accomplished primarily by hand washing is a major component of infection control. Hands should be washed or disinfected with a hand sanitizer immediately before and after touching a patient. Hands should be washed after touching blood, body fluids, secretions, excretions, and contaminated items, even when gloves are worn. Hand washing with plain soap or detergent for at least 10-15 seconds under running water is an effective method of removing soil and transient microorganisms. If sinks for hand washing are not readily available, alcohol-based agents can be used and are allowed by DHH/OPH policy.
- V.17.2 Gloves - Clean, non-sterile, disposable gloves should be worn when touching blood, body fluids, secretions, excretions and contaminated items. Gloves should be removed after use and before touching any non-contaminated items or touching another patient, and hands should be washed immediately with soap and water or an antiseptic hand rub.
- V.17.3 Due to the significant number of health care workers with latex hypersensitivity, other strategies should be available such as non-latex products alone or in combination with latex gloves, powder-free latex gloves, "low protein" latex gloves, and vinyl gloves.
- V.17.4 If gloves are in short supply (i.e., the demand during a pandemic could exceed the supply), priorities for glove use might need to be established. In this circumstance, reserve gloves for situations where there is a likelihood of extensive patient or environmental contact with blood or body fluids, including during suctioning.
- V.17.5 Use other barriers (e.g., disposable paper towels, paper napkins) when there is only limited contact with a patient's respiratory secretions (e.g., to handle used tissues). Hand hygiene should be strongly reinforced in this situation.
- V.18 Masks
- V.18.1 To be consistent with droplet precautions, health care workers and visitors should wear masks when they are within 3 feet of an infected patient or a patient suspected of being infected with influenza virus. Infected patients

or patients suspected of being infected should wear a mask when being transported.

V.18.1.1 Wear a mask when entering a patient's room. A mask should be worn once and then discarded. If pandemic influenza patients are cohorted in a common area or in several rooms on a nursing unit, and multiple patients must be visited over a short time, 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 when they become moist.
- Do not leave masks dangling around the neck.
- Upon touching or discarding a used mask, perform hand hygiene.

V.19 Gowns

V.19.1 Wear an isolation gown, if soiling of personal clothes or uniform with a patient's blood or body fluids, including respiratory secretions, is anticipated. Most patient interactions do not necessitate the use of gowns. However, procedures such as intubation and activities that involve holding the patient close (e.g., in pediatric settings) are examples of when a gown may be needed when caring for pandemic influenza patients.

V.19.1.1 A disposable gown made of synthetic fiber or a washable cloth gown may be used.

V.19.1.2 Ensure that gowns are of the appropriate size to fully cover the area to be protected.

V.19.1.3 Gowns should be worn only once and then placed in a waste or laundry receptacle, as appropriate, and hand hygiene performed.

V.19.1.4 If gowns are in short supply (i.e., the demand during a pandemic could exceed the supply) priorities for their use may need to be established. In this circumstance, reinforcing the situations in which they are needed can reduce the volume used. Alternatively, other coverings (e.g., patient gowns) could be used. It is doubtful that disposable aprons would provide the desired protection in the circumstances where gowns are needed to prevent contact with influenza virus, and therefore should be avoided. There are no data upon which to base a

recommendation for reusing an isolation gown on the same patient. To avoid possible contamination, it is prudent to limit this practice.

V.20 Goggles and face shields

V.20.1 In general, wearing goggles or a face shield for routine contact with patients with pandemic influenza is not necessary. If sprays or splatter of infectious material is likely, goggles or a face shield should be worn as recommended for standard precautions.

V.21 Personal Protective Equipment (PPE) for special circumstances

V.21.1 PPE for aerosol-generating procedures

During procedures that may generate increased small-particle aerosols of respiratory secretions (e.g., endotracheal intubation, nebulizer treatment, bronchoscopy, suctioning), healthcare personnel should wear gloves, gown, face/eye protection, and a N95 respirator or other appropriate particulate respirator. Respirators should be used within the context of a respiratory protection program that includes fit-testing, medical clearance, and training. If possible, and when practical, use of an airborne isolation room may be considered when conducting aerosol-generating procedures.

V.21.2 PPE for managing pandemic influenza with increased transmissibility The addition of airborne precautions, including respiratory protection (an N95 filtering face piece respirator or other appropriate particulate respirator), may be considered for strains of influenza exhibiting increased transmissibility, during initial stages of an outbreak of an emerging or novel strain of influenza, and as determined by other factors such as vaccination/immune status of personnel and availability of antivirals. As the epidemiologic characteristics of the pandemic virus are more clearly defined, CDC will provide updated infection control guidance, as needed.

V.21.3 Precautions for early stages of a pandemic

Early in a pandemic, it may not be clear that a patient with severe respiratory illness has pandemic influenza. Therefore precautions consistent with all possible etiologies, including a newly emerging infectious agent, should be implemented. This may involve the combined use of airborne and contact precautions, in addition to standard precautions, until a diagnosis is established.

V.22 Know what is clean, know what is contaminated, keep them apart

V.22.1 Healthcare personnel should be particularly vigilant to avoid cross contamination. Some of the mistakes commonly observed are:

- V.22.1.1 Touching eyes, nose or mouth with contaminated hands (gloved or ungloved).
- V.22.1.2 Making adjustments to the PPE during patient care or removal. Careful placement of PPE before patient contact will help avoid the need to and risk self-contamination during use.
- V.22.1.3 Touching contaminating environmental surfaces that are not directly related to patient care (e.g., door knobs, light switches)
- V.22.1.4 Touching pen, glasses and other personal items during patient care

V.23 Patient placement

- V.23.1 Isolation plans for use during a pandemic should be developed in advance. Under ideal circumstances, patients with suspected or diagnosed influenza should be in a private room. However, during a pandemic this may not be practical as it is currently impractical during seasonal epidemics. During a pandemic, private rooms are unlikely to be available and containment of infection is likely to be difficult. Consideration should be given to cohorting patients with active confirmed or suspected influenza infection.
- V.23.2 Isolation procedures for other pathogens, including use of a private room, should continue to be utilized. Use of dedicated staff that has been immunized should be considered for care of those with suspected or confirmed influenza infection.

V.24 Patient movement

- V.24.1 Movement and transport of infected patients should be limited as much as possible. If a patient must be transported, he or she should wear a surgical mask to decrease the risk of virus transmission to other patients and health care workers. Congregation of patients should be minimized. This will prevent spreading of illness by non-symptomatic or undiagnosed persons. Patients should also be educated about personal hygiene measures that decrease virus transmission (i.e. covering their mouth and nose when coughing or sneezing, hand washing, discarding tissues, using disposable eating and drinking utensils, etc).

V.25 Linen and laundry

V.25.1 Standard precautions are recommended for linen and laundry that might be contaminated with respiratory secretions from patients with pandemic influenza:

- V.25.1.1 Place soiled linen directly into a laundry bag in the patient's room. Contain linen in a manner that prevents the linen bag from opening or bursting during transport and while in the soiled linen holding area.
- V.25.1.2 Wear gloves and gown when directly handling soiled linen and laundry (e.g., bedding, towels, personal clothing) as per standard precautions. Do not shake or otherwise handle soiled linen and laundry in a manner that might create an opportunity for disease transmission or contamination of the environment.
- V.25.1.3 Wear gloves for transporting bagged linen and laundry.
- V.25.1.4 Perform hand hygiene after removing gloves that have been in contact with soiled linen and laundry.
- V.25.1.5 Wash and dry linen according to routine standards and procedures

V.26 Dishes and eating utensils

V.26.1 Standard precautions are recommended for handling dishes and eating utensils used by a patient with known or possible pandemic influenza:

- V.26.1.1 Wash reusable dishes and utensils in a dishwasher with recommended water temperature
- V.26.1.2 Disposable dishes and utensils (e.g., used in an alternative care site set-up for large numbers of patients) should be discarded with other general waste.
- V.26.1.3 Wear gloves when handling patient trays, dishes, and utensils.

V.27 Patient Care Equipment

V.27.1 Follow standard practices for handling and reprocessing used patient-care equipment, including medical devices:

- V.27.1.1 Wear gloves when handling and transporting used patient-care equipment.
- V.27.1.2 Wipe heavily soiled equipment with an EPA-approved hospital disinfectant before removing it from the patient's room.
- V.27.1.3 Follow current recommendations for cleaning and disinfection or sterilization of reusable patient-care equipment.
- V.27.1.4 Wipe external surfaces of portable equipment for performing x-rays and other procedures in the patient's room with an EPA-approved hospital disinfectant upon removal from the patient's room.

V.28 Environmental Cleaning, Disinfection,

V.28.1 Cleaning and disinfection of environmental surfaces are important components of routine infection control in healthcare facilities. Environmental cleaning and disinfection for pandemic influenza follow the same general principles used in healthcare settings.

V.29 Cleaning and disinfection of patient-occupied rooms

V.29.1 Wear gloves in accordance with facility policies for environmental cleaning and wear a surgical or procedure mask in accordance with droplet precautions. Gowns are not necessary for routine cleaning of an influenza patient's room.

V.29.2 Keep areas around the patient free of unnecessary supplies and equipment to facilitate daily cleaning.

V.29.3 Use any EPA-registered hospital detergent-disinfectant. Follow manufacturer's recommendations for use-dilution (i.e., concentration), contact time, and care in handling.

V.29.4 Follow facility procedures for regular cleaning of patient-occupied rooms. Give special attention to frequently touched surfaces (e.g., bedrails, bedside and over-bed tables, TV controls, call buttons, telephones, lavatory surfaces including safety/pull-up bars, doorknobs, commodes, ventilator surfaces) in addition to floors and other horizontal surfaces.

V.29.5 Clean and disinfect spills of blood and body fluids in accordance with current recommendations for Isolation Precautions

V.30 Cleaning and disinfection after patient discharge or transfer

V.30.1 Follow standard facility procedures for post-discharge cleaning of an isolation room.

V.30.2 Clean and disinfect all surfaces that were in contact with the patient or might have become contaminated during patient care. No special treatment is necessary for window curtains, ceilings, and walls unless there is evidence of visible soiling.

V.30.3 Do not spray (i.e., fog) occupied or unoccupied rooms with disinfectant. This is a potentially dangerous practice that has no proven disease control benefit.

V.31 Postmortem care

V.31.1 Follow standard facility practices for care of the deceased. Practices should include standard precautions for contact with blood and body fluids.

V.32 Laboratory specimens and practices

V.32.1 Follow standard facility and laboratory practices for the collection, handling, and processing of laboratory specimens.

V.32.2 Targeted Influenza Control Measures: Respiratory hygiene/Cough etiquette

V.32.2.1 Respiratory hygiene/cough etiquette has been promoted as a strategy to contain respiratory viruses at the source and to limit their spread in areas where infectious patients might be awaiting medical care (e.g., physician offices, emergency departments).

V.32.2.2 The impact of covering sneezes and coughs and/or placing a mask on a coughing patient on the containment of respiratory secretions or on the transmission of respiratory infections has not been systematically studied. In theory, however, any measure that limits the dispersal of respiratory droplets should reduce the opportunity for transmission. Masking may be difficult in some settings, e.g., pediatrics, in which case the emphasis will be on cough hygiene. The elements of respiratory hygiene/cough etiquette include:

- V.32.2.2.1 Education of healthcare facility staff, patients, and visitors on the importance of containing respiratory secretions to help prevent the transmission of influenza and other respiratory viruses
 - V.32.2.2.2 Posted signs in languages appropriate to the populations served with instructions to patients and accompanying family members or friends to immediately report symptoms of a respiratory infection as directed
 - V.32.2.2.3 Source control measures (e.g., covering the mouth/nose with a tissue when coughing and disposing of used tissues; using masks on the coughing person when they can be tolerated and are appropriate)
 - V.32.2.2.4 Hand hygiene after contact with respiratory secretions, and
 - V.32.2.2.5 Spatial separation, ideally >3 feet, of persons with respiratory infections in common waiting areas when possible.
- V.33 Health Care specific guidance: Hospitals - Detection of persons entering the facility who may have pandemic influenza
- V.33.1 Post visual alerts (in appropriate languages) at the entrance to hospital outpatient facilities (e.g., emergency departments, outpatient clinics) instructing persons with respiratory symptoms (e.g., patients, persons who accompany them) to:
 - V.33.1.1 Inform reception and healthcare personnel when they first register for care, and
 - V.33.1.2 Practice respiratory hygiene/cough etiquette
- V.34 Triage patients calling for medical appointments for influenza symptoms:
- V.34.1 Discourage unnecessary visits to medical facilities
 - V.34.2 Instruct symptomatic patients on infection control measures to limit transmission in the home and when traveling to necessary medical appointments.

- V.34.3 As the scope of the pandemic escalates locally, consider setting up a separate triage area for persons presenting with symptoms of respiratory infection. Because not every patient presenting with symptoms will have pandemic influenza, infection control measures will be important in preventing further spread.
- V.34.4 During the peak of a pandemic, emergency departments and outpatient offices may be overwhelmed with patients seeking care. A “triage officer” may be useful for managing patient flow, including deferral of patients who do not require emergency care.
- V.34.5 Designate separate waiting areas for patients with influenza-like symptoms. If this is not feasible, the waiting area should be set up to enable patients with respiratory symptoms to sit as far away as possible (at least 3 feet) from other patients.
- V.35 “Source control” measures to limit dissemination of influenza virus from respiratory secretions
 - V.35.1 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 persons in the healthcare facility. Signs should instruct persons to:
 - V.35.1.1 Cover the nose/mouth when coughing or sneezing.
 - V.35.1.2 Use tissues to contain respiratory secretions.
 - V.35.1.3 Dispose of tissues in the nearest waste receptacle after use.
 - V.35.1.4 Perform hand hygiene after contact with respiratory secretions.
- V.36 Facilitate adherence to respiratory hygiene/cough etiquette by ensuring the availability of materials in waiting areas for patients and visitors.
 - V.36.1 Provide tissues and no-touch receptacles (e.g., waste containers with pedal-operated lid or uncovered waste container) for used tissue disposal.
 - V.36.2 Provide conveniently located dispensers of alcohol-based hand rub.
 - V.36.3 Provide soap and disposable towels for handwashing where sinks are available.
- V.37 Promote the use of masks and spatial separation by persons with symptoms of influenza.

V.37.1 Offer and encourage the use of either procedure masks (i.e., with ear loops) or surgical masks (i.e., with ties or elastic) by symptomatic persons to limit dispersal of respiratory droplets.

V.37.2 Encourage coughing persons to sit as far away as possible (at least three feet) from other persons in common waiting areas.

V.38 Hospitalization of pandemic influenza patients

V.38.1 Patient placement

V.38.1.1 Limit admission of influenza patients to those with severe complications of influenza who cannot be cared for outside the hospital setting.

V.38.1.2 Admit patients to either a single-patient room or an area designated for cohorting of patients with influenza.

V.38.2 Cohorting

V.38.2.1 Designated units or areas of a facility should be used for cohorting patients with pandemic influenza. During a pandemic, other respiratory viruses (e.g., non-pandemic influenza, respiratory syncytial virus, parainfluenza virus) may be circulating concurrently in a community. Therefore, to prevent cross-transmission of respiratory viruses, whenever possible assign only patients with confirmed pandemic influenza to the same room. At the height of a pandemic, laboratory testing to confirm pandemic influenza is likely to be limited, in which case cohorting should be based on having symptoms consistent with pandemic influenza.

V.38.2.2 Personnel (clinical and non-clinical) assigned to cohorted patient care units for pandemic influenza patients should not “float” or otherwise be assigned to other patient care areas. The number of personnel entering the cohorted area should be limited to those necessary for patient care and support.

V.38.2.3 Personnel assigned to cohorted patient care units should be aware that patients with pandemic influenza may be concurrently infected or colonized with other pathogenic organisms (e.g., *Staphylococcus aureus*, *Clostridium difficile*) and should adhere to infection control practices (e.g., hand hygiene, changing gloves between patient

contact) used routinely, and as part of standard precautions, to prevent nosocomial transmission.

- V.38.2.4 Because of the high patient volume anticipated during a pandemic, cohorting should be implemented early in the course of a local outbreak.

V.38.3 Patient transport

- V.38.3.1 Limit patient movement and transport outside the isolation area to medically necessary purposes.
- V.38.3.2 Consider having portable x-ray equipment available in areas designated for cohorting influenza patients.
- V.38.3.3 If transport or movement is necessary, ensure that the patient wears a surgical or procedure mask. If a mask cannot be tolerated (e.g., due to the patient's age or deteriorating respiratory status), apply the most practical measures to contain respiratory secretions. Patients should perform hand hygiene before leaving the room.

V.38.4 Visitors

- V.38.4.1 Screen visitors for signs and symptoms of influenza before entry into the facility and exclude persons who are symptomatic.
- V.38.4.2 Family members who accompany patients with influenza-like illness to the hospital are assumed to have been exposed to influenza and should wear masks.
- V.38.4.3 Limit visitors to persons who are necessary for the patient's emotional well-being and care.
- V.38.4.4 Instruct visitors to wear surgical or procedure masks while in the patient's room.
- V.38.4.5 Instruct visitors on hand-hygiene practices.

V.39 Control of nosocomial pandemic influenza transmission

- V.39.1 Once patients with pandemic influenza are admitted to the hospital, nosocomial surveillance should be heightened for evidence of transmission to other patients and healthcare personnel. (Once pandemic influenza is firmly established in a community this may not be feasible or necessary.)

V.39.2 If limited nosocomial transmission is detected (e.g., has occurred on one or two patient care units), appropriate control measures should be implemented. These may include:

V.39.2.1 Cohorting of patients and staff on affected units

V.39.2.2 Restriction of new admissions (except for other pandemic influenza patients) to the affected unit(s)

V.39.2.3 Restriction of visitors to the affected unit(s) to those who are essential for patient care and support

V.39.3 If widespread nosocomial transmission occurs, controls may need to be implemented hospital wide and might include:

- Restricting all nonessential persons
- Stopping admissions not related to pandemic influenza and stopping elective surgeries

V.40 Nursing homes and other residential facilities

V.40.1 Residents of nursing homes and other residential facilities will be at particular risk for transmission of pandemic influenza and disease complications. Pandemic influenza can be introduced through facility personnel and visitors; once a pandemic influenza virus enters such facilities, controlling its spread is problematic. Therefore, as soon as pandemic influenza has been detected in the region, nursing homes and other residential facilities should implement aggressive measures to prevent introduction of the virus.

V.41 Prevention or delay of pandemic influenza virus entry into the facility

V.41.1 Control of visitors

V.41.1.1 Post visual alerts (in appropriate languages) at the entrance to the facility restricting entry by persons who have been exposed to or have symptoms of pandemic influenza.

V.41.1.2 Enforce visitor restrictions by assigning personnel to verbally and visually screen visitors for respiratory symptoms at points of entry to the facility.

V.41.1.3 Provide a telephone number where persons can call for information on measures used to prevent the introduction of pandemic influenza.

- V.42 Control of personnel
 - V.42.1 Implement a system to screen all personnel for influenza-like symptoms before they come on duty. Symptomatic personnel should be sent home until they are physically able to return to duty.

- V.43 Monitoring patients for pandemic influenza and instituting appropriate control measures
 - V.43.1 Despite aggressive efforts to prevent the introduction of pandemic influenza virus, persons in the early stages of pandemic influenza could introduce it to the facility. Residents returning from a hospital stay, outpatient visit, or family visit could also introduce the virus. Early detection of the presence of pandemic influenza in a facility is critical for ensuring timely implementation of infection control measures.

 - V.43.2 Early in the progress of a pandemic in the region, increase resident surveillance for influenza-like symptoms. Notify state or local health department officials if a case(s) is suspected.

 - V.43.3 If symptoms of pandemic influenza are apparent, implement droplet precautions for the resident and roommates, pending confirmation of pandemic influenza virus infection. Patients and roommates should not be separated or moved out of their rooms unless medically necessary. Once a patient has been diagnosed with pandemic influenza, roommates should be treated as exposed cohorts.

 - V.43.4 Cohort residents and staff *on units with known or suspected cases of pandemic influenza.*

 - V.43.5 Limit movement within the facility (e.g., temporarily close the dining room and serve meals on nursing units, cancel social and recreational activities).

- V.44 Prehospital care (emergency medical services)
 - V.44.1 Patients with severe pandemic influenza or disease complications are likely to require emergency transport to the hospital. The following information is designed to protect EMS personnel during transport.

 - V.44.2 Screen patients requiring emergency transport for symptoms of influenza.

 - V.44.3 Follow standard and droplet precautions when transporting symptomatic patients.

 - V.44.4 Consider routine use of surgical or procedure masks for all patient transport when pandemic influenza is in the community.

- V.44.5 If possible, place a procedure or surgical mask on the patient to contain droplets expelled during coughing. If this is not possible (i.e., would further compromise respiratory status, difficult for the patient to wear), have the patient cover the mouth/nose with tissue when coughing, or use the most practical alternative to contain respiratory secretions.
- V.44.6 Oxygen delivery with a non-rebreather face mask can be used to provide oxygen support during transport. If needed, positive-pressure ventilation should be performed using a resuscitation bag-valve mask.
- V.44.7 Unless medically necessary to support life, aerosol-generating procedures (e.g., mechanical ventilation) should be avoided during prehospital care.
- V.44.8 Optimize the vehicle's ventilation to increase the volume of air exchange during transport. When possible, use vehicles that have separate driver and patient compartments that can provide separate ventilation to each area.
- V.44.9 Notify the receiving facility that a patient with possible pandemic influenza is being transported.
- V.44.10 Follow standard operating procedures for routine cleaning of the emergency vehicle and reusable patient care equipment.

V.11 Home healthcare services

V.11.1 Home healthcare includes health and rehabilitative services performed in the home by providers including home health agencies, hospices, durable medical equipment providers, home infusion therapy services, and personal care and support services staff. The scope of services ranges from assistance with activities of daily living and physical and occupational therapy to wound care, infusion therapy, and chronic ambulatory peritoneal dialysis (CAPD). Communication between home healthcare providers and patients or their family members is essential for ensuring that these personnel are appropriately protected. When pandemic influenza is in the community, home health agencies should consider contacting patients before the home visit to determine whether persons in the household have an influenza-like illness.

V.11.2 If patients with pandemic influenza are in the home, consider:

V.11.2.1 Postponing nonessential services

V.11.2.2 Assigning providers who are not at increased risk for complications of pandemic influenza to care for these patients

V.11.3 Home healthcare providers who enter homes where there is a person with an influenza-like illness should follow the recommendations for standard and droplet precautions described above. Professional judgment should be used in determining whether to don a surgical or procedure mask upon entry into the home or only for patient interactions. Factors to consider include the possibility that others in the household may be infectious and the extent to which the patient is ambulating within the home.

V.12 Outpatient medical offices

V.12.1 Patients with nonemergency symptoms of an influenza-like illness may seek care from their medical provider. Implementation of infection control measures when these patients present for care will help prevent exposure among other patients and clinical and nonclinical office staff.

V.12.2 Detection of patients with possible pandemic influenza

V.12.2.1 Post visual alerts (in appropriate languages) at the entrance to outpatient offices instructing persons with respiratory symptoms (e.g., patients, persons who accompany them) to:

V.12.1.1.1 Inform reception and healthcare personnel when they first register for care

V.12.1.1.2 Practice respiratory hygiene/cough etiquette

V.12.3 Triage patients calling for medical appointments for influenza symptoms:

V.12.3.1 Discourage unnecessary visits to medical facilities.

V.12.3.2 Instruct symptomatic patients on infection control measures to limit transmission in the home and when traveling to necessary medical appointments.

V.13 “Source control” measures

V.13.1 Post signs that promote cough etiquette in common areas (e.g., elevators, waiting areas, cafeterias, lavatories) where they can serve as reminders to all persons in the healthcare facility. Signs should instruct persons to:

V.13.1.1 Cover the nose/mouth when coughing or sneezing.

V.13.1.2 Use tissues to contain respiratory secretions.

V.13.1.3 Dispose of tissues in the nearest waste receptacle after use.

- V.13.1.4 Perform hand hygiene after contact with respiratory secretions.
- V.14 Facilitate adherence to respiratory hygiene/cough etiquette. Ensure the availability of materials in waiting areas for patients and visitors.
 - V.14.1 Provide tissues and no-touch receptacles (e.g., waste containers with pedal-operated lid or uncovered waste container) for used tissue disposal.
 - V.14.2 Provide conveniently located dispensers of alcohol-based hand rub.
 - V.14.3 Provide soap and disposable towels for hand washing where sinks are available.
 - V.14.4 Promote the use of procedure or surgical masks and spatial separation by persons with symptoms of influenza.
 - V.14.5 Offer and encourage the use of either procedure masks (i.e., with ear loops) or surgical masks (i.e., with ties or elastic) by symptomatic persons to limit dispersal of respiratory droplets.
 - V.14.6 Encourage coughing persons to sit at least 3 feet away from other persons in common waiting areas.
- V.15. Patient placement
 - V.15.1 Where possible, designate separate waiting areas for patients with symptoms of pandemic influenza. Place signs indicating the separate waiting areas.
 - V.15.2 Place symptomatic patients in an evaluation room as soon as possible to limit their time in common waiting areas.
- V.16 Other ambulatory settings
 - V.16.1 A wide variety of ambulatory settings provide chronic (e.g., hemodialysis units) and episodic (e.g., freestanding surgery centers, dental offices) healthcare services. When pandemic influenza is in the region, these facilities should implement control measures similar to those recommended for outpatient physician offices. Other infection control strategies that may be utilized include:
 - V.16.1.1 Screening patients for influenza-like illness by phone or before coming into the facility and rescheduling appointments for those whose care is nonemergency

V.16.1.2 Canceling all nonemergency services when there is pandemic influenza in the community

V.17 Care of pandemic influenza patients in the home

V.17.1 Most patients with pandemic influenza will be able to remain at home during the course of their illness and can be cared for by other family members or others who live in the household. Anyone residing in a household with an influenza patient during the incubation period and illness is at risk for developing influenza. A key objective in this setting is to limit transmission of pandemic influenza within and outside the home. When care is provided by a household member, basic infection control precautions should be emphasized (e.g., segregating the ill patient, hand hygiene). Infection within the household may be minimized if a primary caregiver is designated, ideally someone who does not have an underlying condition that places them at increased risk of severe influenza disease. Although no studies have assessed the use of masks at home to decrease the spread of infection, use of surgical or procedure masks by the patient and/or caregiver during interactions may be of benefit.

V.18 Management of influenza patients

V.18.1 Physically separate the patient with influenza from non-ill persons living in the home as much as possible.

V.18.2 Patients should not leave the home during the period when they are most likely to be infectious to others (i.e., 5 days after onset of symptoms). 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 procedure or surgical masks if available.

V.19 Management of other persons in the home

V.19.1 Persons who have not been exposed to pandemic influenza and who are not essential for patient care or support should not enter the home while persons are actively ill with pandemic influenza.

V.19.2 If unexposed persons must enter the home, they should avoid close contact with the patient.

V.19.3 Persons living in the home with the pandemic influenza patient should limit contact with the patient to the extent possible; consider designating one person as the primary care provider.

V.19.4 Household members should monitor closely for the development of influenza symptoms and contact a telephone hotline or medical care provider if symptoms occur.

V.20 Infection control measures in the home

V.20.1 All persons in the household should carefully follow recommendations for hand hygiene (i.e., handwashing with soap and water or use of an alcohol-based hand rub) after contact with an influenza patient or the environment in which care is provided.

V.20.2 Although no studies have assessed the use of masks at home to decrease the spread of infection, use of surgical or procedure 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.

V.21.3 Soiled dishes and eating utensils should be washed either in a dishwasher or by hand with warm water and soap. Separation of eating utensils for use by a patient with influenza is not necessary.

V.21.4 Laundry can be washed in a standard washing machine with warm or cold water and detergent. It is not necessary to separate soiled linen and laundry used by a patient with influenza from other household laundry. Care should be used when handling soiled laundry (i.e., avoid “hugging” the laundry) to avoid contamination. Hand hygiene should be performed after handling soiled laundry.

V.21.5 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.

V.21.6 Normal cleaning of environmental surfaces in the home should be followed.

V.22 Care of pandemic influenza patients at alternative sites

V.22 If an influenza pandemic results in severe illness that overwhelms the capacity of existing healthcare resources, it may become necessary to provide care at alternative sites (e.g., schools, auditoriums, conference centers, hotels). Existing “all-hazard” plans have likely identified designated sites for this purpose. The same principles of infection control apply in these settings as in other healthcare settings. Careful planning is necessary to ensure that resources are available and procedures are in place to adhere to the key principles of infection control.

V.23 Schools and Workplaces

V.23.1 In schools and workplaces, infection control for pandemic influenza should focus on:

V.23.1.2 Keeping sick students, faculty, and workers away while they are infectious.

V.23.1.3 Promoting respiratory hygiene/cough etiquette and hand hygiene as for any respiratory infection. The benefit of wearing masks in these settings has not been established.

V.23.1 School administrators and employers should ensure that materials for respiratory hygiene/cough etiquette (i.e., tissues and receptacles for their disposal) and hand hygiene are available. Educational messages and infection control guidance for pandemic influenza are available for distribution.

V.24 Community Settings

V.24.1 Infection control in the community should focus on “social distancing” and promoting respiratory hygiene/cough etiquette and hand hygiene to decrease exposure to others. This could include the use of masks by persons with respiratory symptoms, if feasible. Although the use of masks in community settings has not been demonstrated to be a public health measure to decrease infections during a community outbreak, persons may choose to wear a mask as part of individual protection strategies that include cough etiquette, hand hygiene, and avoiding public gatherings. Mask use may also be important for persons who are at high risk for complications of influenza. Public education should be provided on how to use masks appropriately. Persons at high risk for complications of influenza should try to avoid public gatherings (e.g., movies, religious services, public meetings) when pandemic influenza is in the community. They should also avoid going to other public areas (e.g., food stores, pharmacies); the use of other persons for shopping or home delivery service is encouraged.

V.25 Personnel

V.25.1 Health Care Workers with Influenza-like Illness

V.25.1.1 As part of the health care organization's responsibility to implement measures that reduce transmission of infection, it may be necessary to exclude personnel from patient contact if they have symptoms of febrile upper respiratory tract infection suggestive of influenza. This is especially

critical if the health care worker cares for severely immunocompromised patients, both as in-patients or out-patients, including neonates, young infants, and patients in the intensive care unit. To reduce the likelihood of excluding personnel from duty, all health care workers should be strongly encouraged to receive annual influenza vaccine and receive pandemic strain vaccine once it is available. Consideration may also be given to chemoprophylaxis with antiviral agents if vaccine is not available.

- V.25.1.2 During a pandemic, when health care systems are likely to be overwhelmed, it may be necessary to amend personnel restriction policies. For example, health care workers with symptoms of influenza-like illness, who feel well enough to be at work, might be allowed to care for patients with known influenza therefore freeing other personnel to care for non-influenza patients. Except in circumstances of limited staff, it would be better if personnel with febrile influenza-like illness did not care for patients at high risk of complications from influenza infection. Hospitals and other health care facilities, including both in-patient and out-patient facilities, need a plan for staffing during the various periods of pandemic influenza that considers high census, high absenteeism, ill staff, use of diagnostic tests for staff assignments, and that weighs the benefits and risks for patients of high risk of influenza infection. Policies regarding staff refusal to care for influenza patients should also be addressed.

V. 26 Visitors

- V.26.1 Visitors should be limited as much as possible to reduce the likelihood of transmission of influenza from ill visitors to patients and/or health care workers and vice versa. The use of family members and volunteers to assist during a pandemic may be considered with education and documented policies in place.

V.27 Outbreak Control

- V.27.1 Influenza outbreaks in healthcare facilities can occur whenever influenza exists in the community. Vaccination remains the most important measure to prevent the spread of influenza in healthcare facilities. However, incomplete vaccination, less than 100% vaccination efficacy, and the introduction of infected people into the facilities can lead to influenza outbreaks. The factors that can lead to an outbreak will be expected to

intensify during a pandemic. Active surveillance programs can reduce or prevent outbreaks. Prompt recognition of influenza infection needs to be followed by the initiation of infection control measures. It is recommended that all healthcare facilities develop and implement an influenza outbreak control plan. Steps that should be considered in an outbreak control plan are:

- V.27.1.1 Implement an influenza surveillance program including the monitoring of patients, new admissions, and staff and measures for infection control.
- V.27.1.2 Incorporate a system of communication between laboratory and infection control personnel to insure regular updating of influenza activity.
- V.27.1.3 Incorporate all aspects of infection control including protocols for vaccine and antiviral medication use, education on preventive measures, and patient management.

VI. Rural Health and Primary Care

- VI.1 A variety of primary and preventive health care providers serve Louisiana's rural areas. They include local physician practices, rural health clinics, federally qualified health centers, outpatient clinics of small rural hospitals, school-based health centers, parish health units, dental offices and local pharmacies. These providers serve as the health care safety net for many rural residents, serving many areas uninsured and Medicaid patients.
- VI.2 Any effort to assist rural primary health care providers in disaster planning and response needs to include these local entities and their representative trade organizations and state partners. These organizations include:
 - The Louisiana Primary Care Association
 - The Rural Hospital Coalition
 - The Louisiana Medical Society
 - The Louisiana Rural Health Association
 - The Louisiana Department of Health and Hospitals – Bureau of Primary Care and Rural Health
 - The Louisiana Hospital Association
 - Area Health Education Centers (four regional offices)
 - The Louisiana Department of Health and Hospitals – Adolescent School Health Program

- The Louisiana Department of Health and Hospitals – Office of Public Health
- The Louisiana Board of Pharmacies

VI.3 State Level Roles and Responsibilities

- a. Planning
 - i. Review current ORH emergency plans
 - ii. Contact partners for other State Emergency and Pandemic Influenza Plans
 - iii. Develop a rural health Pandemic Flu planning committee
 - iv. Develop a LA ORH Pan Flu Plan
- b. Participation
 - i. Participate on State Level PF planning committees
 - ii. Ensure that ORH issues are included in drills and training
 - iii. Encourage RH entities to participate in Regional and Local PF drills

VI.4 Structure for planning and decision-making

VI.4.1 The first step in developing a disaster plan for rural primary care providers involves developing a structure for rural primary care providers to engage in disaster planning and decision-making. DHH's Bureau of Primary Care and Rural Health will engage the aforementioned primary care partners to begin this planning process.

VI.4.2 These providers will be engaged to develop a written pandemic influenza plan that will address:

- Surveillance
- Communication
- Training
- Triage and admission
- Facility access
- Occupational health
- Vaccine and antiviral use
- Surge capacity
- Needs related to durable and consumable resources
- Managing increased numbers of deceased persons

VI.4.3 Overarching challenges to addressing these planning elements within rural primary care provider organizations are as follows:

- VI.4.3.1 There are a wide variety of rural primary care providers with very different organizational structures, resources, staffing, and level of clinical and administrative expertise,
- VI.4.3.2 Rural providers may be inexperienced in disaster planning and response,
- VI.4.3.3 Rural providers may have extremely limited staffing to address disaster planning within their facilities,
- VI.4.3.4 Rural providers may need extensive technical support in order to develop and implement disaster planning and response protocols,
- VI.4.3.5 Rural providers have limited or no communications infrastructure that would link them to other disaster partners, including local hospitals, and
- VI.4.3.6 There is no formal state network that links all of the rural primary care providers together.

VI.4.4 Challenges specific to each planning element include:

VI.4.4.1 Surveillance

- VI.4.4.1.1 Rural providers may have limited awareness of or education on existing surveillance plans and methods. This lack of education will limit their ability to contribute or benefit from surveillance.
- VI.4.4.1.2 Rural providers may not have the expertise to identify the early stages of pandemic flu.
- VI.4.4.1.3 Rural provider may not know the protocols for limiting transmission of pandemic flu among their staff and patients.

VI.4.4.2 Communications

- VI.4.4.2.1 Rural primary care providers are not currently or formally linked into the state's emergency preparedness communications network.

- VI.4.4.2.2 Local rural providers need to identify contacts within each provider organization to engage in the disaster response when it occurs.
- VI.4.4.2.3 Communications equipment will be needed in many of the rural provider sites to enable access to the emergency preparedness network, tracking of pandemic influenza patients and to receive pandemic flu updates for educating staff and patients.
- VI.4.4.2.4 Rural clinicians, administrators and non-facility staff will need extensive local education on pandemic influenza.

VI.4.5 Triage and admission

- VI.4.5.1 Rural providers have not developed a plan that establishes triage sites. There may be limited options for triage sites due to limited facility space and locations in rural areas.
- VI.4.5.2 Rural clinicians will need extensive local education on triage procedures and protocols during a pandemic influenza.

VI.4.6 Facility access

- VI.4.6.1 There will be a need for the development and education of protocols for rural providers on how to limit new admissions and visitors during a pandemic influenza.
- VI.4.6.2 Rural providers typically do not have security resources or staff capacity to limit new admissions and visitors.

VI.4.7 Occupational health

- VI.4.7.1 Rural providers are not currently part of the Office of Public Health emergency vaccine supply and distribution network/process
- VI.4.7.2 Protocols are needed for accessing and distributing vaccines among staff and patients once vaccines are available
- VI.4.7.3 Systems are not in place in rural provider organizations for detecting and coping with symptomatic personnel

VI.4.7.4 There is limited mental health service capacity in rural areas that would be available for crisis counseling during a disaster

VI.4.7.5 Rural areas have limited primary care staff and supplies on a daily basis, which will make it very difficult to deal with issues related to surge capacity

VII. Clinical Guidelines - Background

VII.1 Influenza viruses are unique in their ability to cause infection in all age groups on a global scale. In addition to the highly transmissible nature of influenza, the virus can change its antigenic structure, resulting in novel sub-types that have never occurred in humans before. Major shifts in the viral sub-types are associated with influenza pandemics. The 1918 influenza pandemic caused more than 20 million deaths worldwide while the pandemics of 1957 and 1968 resulted in lower mortality rates due in part to antibiotic therapy for secondary bacterial infections and more aggressive supportive care. They both, however, were associated with high rates of morbidity and social disruption.

VII.2 Pandemic influenza is a unique public health emergency and community disaster. It is considered a highly probable, if not inevitable, event but no one can predict when it will occur. There may be little warning, but most experts agree that there will be one to six months between identification of a novel virus and widespread outbreaks in the U.S.

VII.3 It is widely hypothesized that outbreaks will occur simultaneously throughout the U.S., and the effect on individual communities will last at least from six to eight weeks or more.

VII.4 Pandemic Phase Chart - National pandemic planning is divided into several phases, from early identification of a novel virus to resolution of pandemic cycling. These phases are determined and announced by the CDC in collaboration with the World Health Organization . These declared and defined phases will help ensure a consistent and coordinated response by national, state, and local agencies in the event of a pandemic influenza occurring. The intent is for all activities listed in this document to be initiated during the assigned pandemic phase. Some activities will, of course, continue during subsequent phases.

Pandemic Phase	Definition
Novel Virus Alert	<ul style="list-style-type: none"> • Novel virus detected in one or more humans • Little or no immunity in the general population • Potential, but not inevitable precursor to pandemic
Pandemic Alert	<ul style="list-style-type: none"> • Novel virus demonstrates sustained person-to-person

Pandemic Phase	Definition
	transmission and causes multiple cases in the same geographic area
Pandemic Imminent	<ul style="list-style-type: none"> • Novel virus causing unusually high rates of morbidity and/or mortality in multiple, widespread geographic areas
Pandemic	<ul style="list-style-type: none"> • Further spread with involvement of multiple continents; formal declaration made
Second Wave	<ul style="list-style-type: none"> • Reoccurrence of epidemic activity within several months following the initial wave of infection
Pandemic over	<ul style="list-style-type: none"> • Cessation of successive pandemic “waves,” accompanied by return (in the U.S.) of more typical wintertime “epidemic” cycle

Figure 5: Phases of Pandemic Influenza

VII.5 Clinical Guidelines

Generalities

VII.5.1 Rationale - Healthcare providers play an essential role in the detection of an initial case of novel or pandemic influenza in a community. If implemented early, identification and isolation of cases may help slow the spread of influenza within a community. Clinical awareness of novel or pandemic influenza disease can also benefit the individual patient, as rapid diagnosis and initiation of treatment can avert potentially severe complications. Detection is complicated, however, by the lack of specific clinical findings and commercially available laboratory tests that can rapidly distinguish novel or pandemic influenza from seasonal influenza. In addition, neither the clinical characteristics of a novel or pandemic influenza virus strain nor the groups at highest risk for complications can necessarily be defined beforehand. Therefore, clinicians face significant challenges in:

1. Quickly identifying and triaging cases,
2. Containing the spread of infection,
3. Beginning an efficient and comprehensive workup,
4. Initiating antiviral and other supportive therapy,
5. Anticipating clinical complications.

VII.5.2 Public health roles and responsibilities for clinical Guidelines

VII.5.3 Interpandemic and pandemic alert periods

Healthcare providers:

- VII.5.3.1 Be aware of case definitions; procedures for screening, infection control, and laboratory testing; and antiviral regimens for influenza A (H5N1) and other novel influenza viruses.
- VII.5.3.2 Notify health departments about suspected/confirmed novel influenza cases and fatalities.
- VII.5.3.3 Collect recommended specimens for diagnosis of novel influenza, and forward specimens to designated state and federal laboratories.

State DHH/Office of Public Health:

- VII.5.3.4 Help educate healthcare providers about novel and pandemic influenza.
- VII.5.3.5 Provide or facilitate testing and investigation of suspected novel influenza cases.
- VII.5.3.6 Conduct follow-up of suspected novel influenza cases.

VII.5.4 Pandemic period

Healthcare providers

- VII.5.4.1 Regularly consult updates on case definitions, screening, laboratory testing, and treatment algorithms for pandemic influenza.
- VII.5.4.2 Report pandemic influenza cases or fatalities as requested by health departments.
- VII.5.4.3 Collect recommended specimens for ongoing pandemic influenza surveillance, and forward specimens as requested to designated state and federal laboratories.
- VII.5.4.4 Report atypical cases, breakthrough infections while on prophylaxis, or any other abnormal cases throughout the duration of the pandemic to public health agencies.

State DHH/Office of Public Health

- VII.5.5.5 Update providers regularly as the influenza pandemic unfolds.
- VII.5.5.6 Provide or facilitate testing and investigation of pandemic influenza cases.
- VII.5.5.7 Work with CDC to investigate and report special pandemic situations.

VII.5.6 Overview of clinical guidelines

- VII.5.6.1 The clinical guidelines provide clinical procedures for the initial screening, assessment, and management of patients with suspected novel influenza during the Interpandemic and Pandemic Alert Periods, and for patients with suspected pandemic influenza during the Pandemic Period.
- VII.5.6.2 The Appendices include information on the clinical presentation and complications of seasonal influenza, the clinical features of infection due to avian influenza A (H5N1) virus and previous pandemic influenza viruses, and the management of patients with community-acquired pneumonia or secondary bacterial pneumonia during a pandemic. The guidance is current as of October 2005, and is subject to change as experience is gained. Updates will be provided, as needed, on the CDC website <http://www.cdc.gov/flu/>.
- VII.5.6.3 During the Interpandemic and Pandemic Alert Periods, early recognition of illness caused by a novel influenza A virus strain will rely on a combination of clinical and epidemiologic features.
- VII.5.6.4 During the Pandemic Period (in a setting of high community prevalence), diagnosis will likely be more clinically oriented because the likelihood will be high that any severe febrile respiratory illness is pandemic influenza.

VII.5.7 During periods in which no human infections with a novel influenza A virus strain have occurred anywhere in the world, or when sporadic cases of animal-to human transmission or rare instances of limited human-to-human transmission of a novel influenza A virus strain have occurred in the world, the likelihood of novel influenza A virus infection is very low in a returned traveler from an affected area who has severe respiratory

disease or influenza-like illness. Since human influenza A and B viruses circulate worldwide among humans year-round, the possibility of infection with human influenza viruses is much higher and should be considered.

VII.5.8 Once local person-to-person transmission of a novel influenza A virus strain has been confirmed (Pandemic Alert Period: Phase 5), the potential for novel influenza A virus infection will be higher in an ill person who has a strong epidemiologic link to the affected area

VII.6 Clinical guidelines during interpandemic and pandemic alert periods

VII.6.1 During the Interpandemic and Pandemic Alert Periods, the primary goal of rapid detection is to quickly identify and contain cases of novel influenza. To limit the need to evaluate an overwhelming number of patients, the screening criteria should be specific, relying on a combination of clinical and epidemiologic features. Although febrile respiratory illnesses are one of the most common indications for medical evaluation, particularly during the winter, during the interpandemic and pandemic alert period, human cases of novel influenza are expected to be quite rare; laboratory diagnosis will most likely be sought for those with severe respiratory illness, such as pneumonia.

VII.7 Criteria for evaluation of patients with possible novel influenza

VII.7.1 During the Pandemic Alert Period, human infections with novel influenza A viruses will be an uncommon cause of influenza-like illness; therefore, both clinical and epidemiologic criteria should be met. The criteria will be updated when needed as more data are collected.

VII.8 Clinical criteria

VII.8.1 Any suspected cases of human infection with a novel influenza virus must first meet the criteria for influenza-like illness (ILI), defined as temperature of $>38^{\circ}\text{C}$ plus either sore throat or cough. Since lower respiratory tract involvement might result in dyspnea (shortness of breath), dyspnea should be considered as an additional criterion. Therefore, the full clinical criteria are fever plus one of the following: sore throat, cough, or dyspnea.

VII.8.2 Although recent infections with novel influenza viruses have resulted in severe respiratory illness, the next pandemic influenza virus strain might present with a different clinical syndrome. In such a situation, the clinical criteria will be modified accordingly and posted at <http://www.cdc.gov/flu>.

VII.8.3 Given the large number of influenza-like illnesses that clinicians encounter during a typical flu season, laboratory evaluation for novel influenza A viruses during the Interpandemic and Pandemic Alert Periods is recommended only for:

VII.8.3.1 Hospitalized patients with severe ILI, including pneumonia, who meet the epidemiologic criteria, *or*

VII.8.3.2 Non-hospitalized patients with ILI and with strong epidemiologic suspicion of novel influenza virus exposure (e.g., direct contact with ill poultry in an affected area, or close contact with a known or suspected human case of novel influenza.).

VII.9 Exceptions to the current clinical criteria

VII.9.1 Persons with a high risk of exposure—For persons with a high risk of exposure to a novel influenza virus (e.g., poultry worker from an affected area,* caregiver of a patient with laboratory-confirmed novel influenza, employee in a laboratory that works with live novel influenza viruses), epidemiologic evidence might be enough to initiate further measures, even if clinical criteria are not fully met. In these persons, early signs and symptoms—such as rhinorrhea, conjunctivitis, chills, rigors, myalgia, headache, and diarrhea—in addition to cough or sore throat, may be used to fulfill the clinical criteria for evaluation.

VII.9.2 High-risk groups with atypical symptoms—Young children, elderly patients, patients in long-term care facilities, and persons with underlying chronic illnesses might not have typical influenza-like symptoms, such as fever. When such patients have a strong epidemiologic risk factor, novel influenza should be considered with almost any change in health status, even in the absence of typical clinical features. Conjunctivitis has been reported in patients with influenza A (H7N7) and (H7N3) infections. In young children, gastrointestinal manifestations such as vomiting and diarrhea might be present. Infants may present with fever or apnea alone, without other respiratory symptoms, and should be evaluated if there is an otherwise increased suspicion of novel influenza.

*Updated lists of affected areas are provided at the websites of

- OIE - http://www.oie.int/eng/en_index.htm
- WHO – <http://www.who.int/en/>
- CDC - <http://www.cdc.gov/flu/>

VII.10 Epidemiologic criteria

VII.10.1 Epidemiologic criteria for evaluation of patients with possible novel influenza focus on the risk of exposure to a novel influenza virus with pandemic potential. Although the incubation period for seasonal influenza ranges from 1 to 4 days, the incubation periods for novel types of influenza are currently unknown and might be longer. Therefore, the maximum interval between potential exposure and symptom onset is set conservatively at 10 days.

VII.11 Exposure risks—Exposure risks fall into two categories: travel and occupational.

Travel risks

VII.11.1 Persons have a travel risk if they have: 1) recently visited or lived in an area affected by highly pathogenic avian influenza A outbreaks in domestic poultry or where a human case of novel influenza has been confirmed, *and either* 2) had direct contact with poultry, or 3) had close contact with a person with confirmed or suspected novel influenza. Updated listings of areas affected by avian influenza A (H5N1) and other current/recent novel strains are provided on the websites of the OIE (http://www.oie.int/eng/en_index.htm), WHO (www.who.int/en/), and CDC (www.cdc.gov/flu/).

VII.11.2 *Direct contact* with poultry is defined as:

- Touching birds (well-appearing, sick, or dead), or
- Touching poultry feces or surfaces contaminated with feces,
- Consuming uncooked poultry products (including blood) in an affected area.

VII.11.3 *Close contact* with a person from an infected area with confirmed or suspected novel influenza is defined as being within 3 feet (1 meter) of that person during their illness.

VII.11.4 Because specific testing for human infection with avian influenza A (H5N1) might not be locally available in an affected area, persons reporting close contact in an affected area with a person suffering from a severe, yet unexplained, respiratory illness should also be evaluated.

VII.11.5 Clinicians should recognize that human influenza viruses circulate worldwide and year-round, including in countries with outbreaks of avian influenza A (H5N1) among poultry. Therefore, during the

Interpandemic and Pandemic Alert Periods, 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 highly pathogenic avian influenza A (H5N1) in Asia. As of October 2005, such persons are currently more likely to have infection with human influenza viruses than with avian influenza A (H5N1) viruses.

Occupational risks

- VII.11.6 Persons at occupational risk for infection with a novel strain of influenza include persons who work on farms or live poultry markets or who process or handle poultry infected with known or suspected avian influenza viruses, workers in laboratories that contain live animal or novel influenza viruses, and healthcare workers in direct contact with a suspected or confirmed novel influenza case.
- VII.11.7 Information on limiting occupational risk is provided on the Occupational Health and Safety Administration (OSHA) website at: <http://www.osha.gov/dsg/guidance/avian-flu.html>.
- VII.11.8 During the Interpandemic and Pandemic Alert Periods, when there is no sustained human-to-human transmission of any novel influenza viruses, direct contact with animals such as poultry in an affected area or close contact with a case of suspected or confirmed human novel influenza—for any reason—is required for further evaluation. During the Pandemic Alert Period, Phases 3 and 4, the majority of human cases of novel influenza will result from avian-to-human transmission. Therefore, a history of direct contact with poultry (well-appearing, sick, or dead), consumption of uncooked poultry or poultry products, or direct exposure to environmental contamination with poultry feces in an affected area will be important to ascertain. During the Pandemic Alert Period, Phase 5, a history of close contact with an ill person suspected or confirmed to have novel influenza in an affected area will be even more important.
- VII.11.9 Other avian influenza A viruses — Although the epidemiologic criteria for novel influenza are based on recent human cases of avian influenza A (H5N1), they are intended for use in the evaluation of suspected cases of infection with any novel influenza A virus strain, including other avian influenza viruses. Other avian influenza A viruses that have caused human disease include the highly pathogenic viruses H7N7 and H7N3 and the low pathogenic

viruses H9N2 and H7N2. Some of these human cases have occurred in Europe (Netherlands) and North America (Canada and the United States). Therefore, the same high-risk exposures defined above for avian influenza A (H5N1) also apply to other avian influenza A viruses. A strong epidemiologic link to an avian influenza outbreak in poultry— even in areas that have not experienced poultry outbreaks of avian influenza A (H5N1)—may raise the index of suspicion for human infection with avian influenza A viruses. In the future, other animal hosts (in addition to poultry) or novel influenza A virus subtypes (in addition to H5N1) might become significantly associated with human disease. If such events occur, this guidance will be updated.

VII.11.10 Risk of novel influenza in persons with severe respiratory disease or influenza-like illness during the interpandemic and pandemic alert periods - Clinicians should recognize that human influenza A and B viruses and other respiratory viruses circulate year-round among people throughout the world, including in countries affected by outbreaks of avian influenza A viruses in poultry. Seasonal human influenza A and B community outbreaks occur in temperate climates of the northern and southern hemisphere, and human influenza activity may occur year-round in subtropical and tropical regions. Outbreaks of human influenza can occur among travelers during any time of the year, including periods of low influenza activity in the United States (e.g., summer).

VII.12 Phases 1, 2: Interpandemic Period - A novel influenza A virus has been detected in animals but not in humans. During these phases, the risk of human infection with a novel influenza A virus strain is extremely low. The risk of human infection with human influenza viruses or other viruses is much higher in persons living in or traveling to affected areas.

VII.13 Phases 3, 4: Pandemic Alert Period - A novel influenza A virus has been detected in humans through sporadic animal-to-human transmission in an affected area (e.g., direct contact with infected poultry), and few cases of limited, local human-to-human transmission have occurred (small clusters of cases). During these phases, the risk of human infection with a novel influenza A virus strain is very low. The risk of human infection with human influenza viruses or other viruses is much higher in persons living in or traveling to affected areas.

VII.14 Phase 5: Pandemic Alert Period - A novel influenza A virus has been detected in humans in larger clusters in an affected area, suggesting that the virus is becoming better adapted to spread among people. During this period, the risk of human infection with a novel influenza A virus strain is higher, depending on specific exposures, in persons living in or traveling to affected areas. Human infection

with human influenza viruses or other viruses will occur and should still be considered.

VII.15 Initial management of patients who meet the criteria for novel influenza - When a patient meets both the clinical and epidemiologic criteria for a suspected case of novel influenza, healthcare personnel should initiate the following activities:

VII.15.1 Implement infection control precautions for novel influenza, including Respiratory Hygiene/Cough Etiquette. Patients should be placed on Droplet Precautions for a minimum of 14 days, unless there is full resolution of illness or another etiology has been identified before that period has elapsed. Healthcare personnel should wear surgical or procedure masks on entering a patient's room, as per Droplet Precautions, as well as gloves and gowns, when indicated for Standard Precautions (Table). Patients should be admitted to a single-patient room, and patient movement and transport within the hospital should be limited to medically necessary purposes

VII.15.2 Notify the Office of Public Health. Report each patient who meets the clinical and epidemiologic criteria for a suspected case of novel influenza to the state or local health department as quickly as possible to facilitate initiation of public health measures. The Infection Control Practitioners are the persons usually designated as a point of contact to update public health authorities on the patient's clinical status.

VII.15.3 Obtain clinical specimens for novel influenza A virus testing and notify the Office of Public Health to arrange testing. Since the optimal specimens for detecting novel influenza A virus infections are currently unknown, if feasible, all of the following respiratory specimens should be collected for novel influenza A virus testing: nasopharyngeal swab; nasal swab, wash, or aspirate; throat swab; and tracheal aspirate (for intubated patients). Store specimens at 4°C in viral transport media until transported or shipped for testing. Acute (within 7 days of illness onset) and convalescent serum specimens (2–3 weeks after the acute specimen and at least 3 weeks after illness onset) should be obtained and refrigerated at 4°C or frozen at minus 20–80°C. Serological testing for novel influenza virus infection can be performed only at CDC. Clinicians should immediately notify their local health departments of their intention to ship clinical specimens from suspected cases of human infection with avian influenza, to ensure that the specimens are handled under proper biocontainment conditions.

- VII.15.4 Novel influenza can be confirmed by RT-PCR or virus isolation from tissue cell culture with subtyping. RT-PCR for testing of novel influenza viruses cannot be performed by a hospital laboratory and is available only at state public health laboratories and CDC.
- VII.15.5 Viral culture of specimens from suspected novel influenza cases should be attempted only in laboratories that meet the biocontainment conditions for BSL-3 with enhancements or higher.
- VII.15.6 Rapid influenza diagnostic tests and immunofluorescence (indirect fluorescent antibody staining [IFA] or direct fluorescent antibody staining [DFA]) may be used to detect seasonal influenza, but should not be used to confirm or exclude novel influenza during the Pandemic Alert Period. Rapid influenza tests have relatively low sensitivity for detecting seasonal influenza, and their ability to detect novel influenza subtypes is unknown. The sensitivity of rapid diagnostic tests will likely be higher in specimens collected within two days of illness onset, in children, and when tested in clinical laboratories that perform a high volume of testing. Such tests can identify influenza A viruses but cannot distinguish between human infection with seasonal and novel influenza A viruses. A negative rapid influenza test result does not necessarily exclude human infection with either seasonal or novel influenza A viruses. A positive rapid influenza test result could be a false positive or represent infection with either seasonal or novel influenza A viruses. Therefore, both negative and positive rapid influenza test and immunofluorescence results should be interpreted with caution, and RT-PCR testing for influenza viruses should be performed. Further information on rapid diagnostic testing is provided in the Laboratory section of the plan.
- VII.15.7 Acute and convalescent serum samples and other available clinical specimens (respiratory, blood, and stool) should be saved and refrigerated or frozen for additional testing until a specific diagnosis is made.
- VII.15.8 Evaluate alternative diagnoses. An alternative diagnosis should be based only on laboratory tests with high positive predictive value (e.g., blood culture, viral culture, PCR, *Legionella* urinary antigen, pleural fluid culture, transthoracic aspirate culture). If an alternate etiology is identified, the possibility of co-infection with a novel influenza virus may still be considered if there is a strong epidemiologic link to exposure to novel influenza.

- VII.15.9 Decide on inpatient or outpatient management. The decision to hospitalize a suspected novel influenza case will be based on the physician's clinical assessment and assessment of risk and whether adequate precautions can be taken at home to prevent the potential spread of infection. Patients cared for at home should be separated from other household members as much as possible. All household members should carefully follow recommendations for hand hygiene, and tissues used by the ill patient should be placed in a bag and disposed with other household waste. Although no studies have assessed the use of masks at home to decrease the spread of infection, use of surgical or procedure masks by the patient and/or caregiver during interactions may be of benefit. Separation of eating utensils for use by a patient with influenza is not necessary, as long as they are washed with warm water and soap.
- VII.15.10 Initiate antiviral treatment as soon as possible, even if laboratory results are not yet available. Clinical trials have shown that these drugs can decrease the illness due to seasonal influenza duration by several days when they are initiated within 48 hours of illness onset. The clinical effectiveness of antiviral drugs for treatment of novel influenza is unknown, but it is likely that the earlier treatment is initiated, the greater the likelihood of benefit. During the Pandemic Alert Period, available virus isolates from any case of novel influenza will be tested for resistance to the currently licensed antiviral medications. See the Antiviral section of the plan for current antiviral information and treatment strategies.
- VII.15.11 Assist public health officials with the identification of potentially exposed contacts. After consulting with state and local public health officials, clinicians might be asked to help identify persons exposed to the suspected novel influenza case-patient (particularly healthcare workers). In general, persons in close contact with the case-patient at any time beginning one day before the onset of illness are considered at risk. Close contacts might include household and social contacts, family members, workplace or school contacts, fellow travelers, and/or healthcare providers (see special sections of this plan).
- VII.15.12 Clinical evaluation of patients with influenza-like illness during the interpandemic and pandemic alert periods - Patients who require hospitalization for an influenza-like illness for which a definitive alternative diagnosis is not immediately apparent* should be questioned about:
- Travel to an area affected by avian influenza A virus outbreaks in poultry,

- Direct contact with poultry,
 - Close contact with persons with suspected or confirmed novel influenza,
 - Occupational exposure to novel influenza viruses (such as through agricultural, health care, laboratory activities).
- VII.15.13 Patients may be screened on admission for recent seasonal influenza vaccination and pneumococcal vaccination. Those without a history of immunization should receive these vaccines before discharge, if indicated.
- VII.15.14 Patients meeting the epidemiologic criteria for possible infection with a novel strain of influenza should undergo a routine diagnostic work-up, guided by clinical indications. Appropriate personal protective equipment should be used when evaluating patients with suspected novel influenza, including during collection of specimens.
- VII.15.15 Diagnostic testing for a novel influenza A virus should be initiated as follows:
- VII.15.15.1 Collect all of the following specimens: nasopharyngeal swab, nasal swab, wash, or aspirate, throat swab, and tracheal aspirate (if intubated), and place into viral transport media and refrigerate at 4° C until specimens can be transported for testing.
- VII.15.15.2 Immediately contact the local and state health departments to report the suspected case and to arrange novel influenza testing by RT-PCR. RT-PCR testing is not available in hospital laboratories and must be performed at a qualified laboratory such as a state health department laboratory or the CDC Influenza Laboratory. Viral culture should be performed only at biosafety level 3 [BSL-3] with enhancements.
- VII.15.15.3 Depending on the clinical presentation and the patient's underlying health status, other initial diagnostic testing might include:
- Pulse oximetry
 - Chest radiograph
 - Complete blood count (CBC) with differential

- Blood cultures
- Sputum (in adults), tracheal aspirate, and pleural effusion aspirate (if an effusion is present) Gram stain and culture
- Antibiotic susceptibility testing (encouraged for all bacterial isolates)
- Multivalent immunofluorescent antibody testing or PCR of nasopharyngeal aspirates or swabs for common viral respiratory pathogens, such as influenza A and B, adenovirus, parainfluenza viruses, and respiratory syncytial virus, particularly in children
- In adults with radiographic evidence of pneumonia, *Legionella* and pneumococcal urinary antigen testing
- If clinicians have access to rapid and reliable testing (e.g., PCR) for *M. pneumoniae* and *C. pneumoniae*, adults and children <5 yrs with radiographic pneumonia should be tested.
- Comprehensive serum chemistry panel, if metabolic derangement or other end-organ involvement, such as liver or renal failure, is suspected

VII.15.15.4 Further evaluation and diagnostic testing should also be considered for outpatients with strong epidemiologic risk factors and mild or moderate illness.

VII.15.15.5 Healthcare personnel should wear surgical or procedure masks on entering a patient's room (Droplet Precautions), as well as gloves and gowns, when indicated (Standard Precautions)

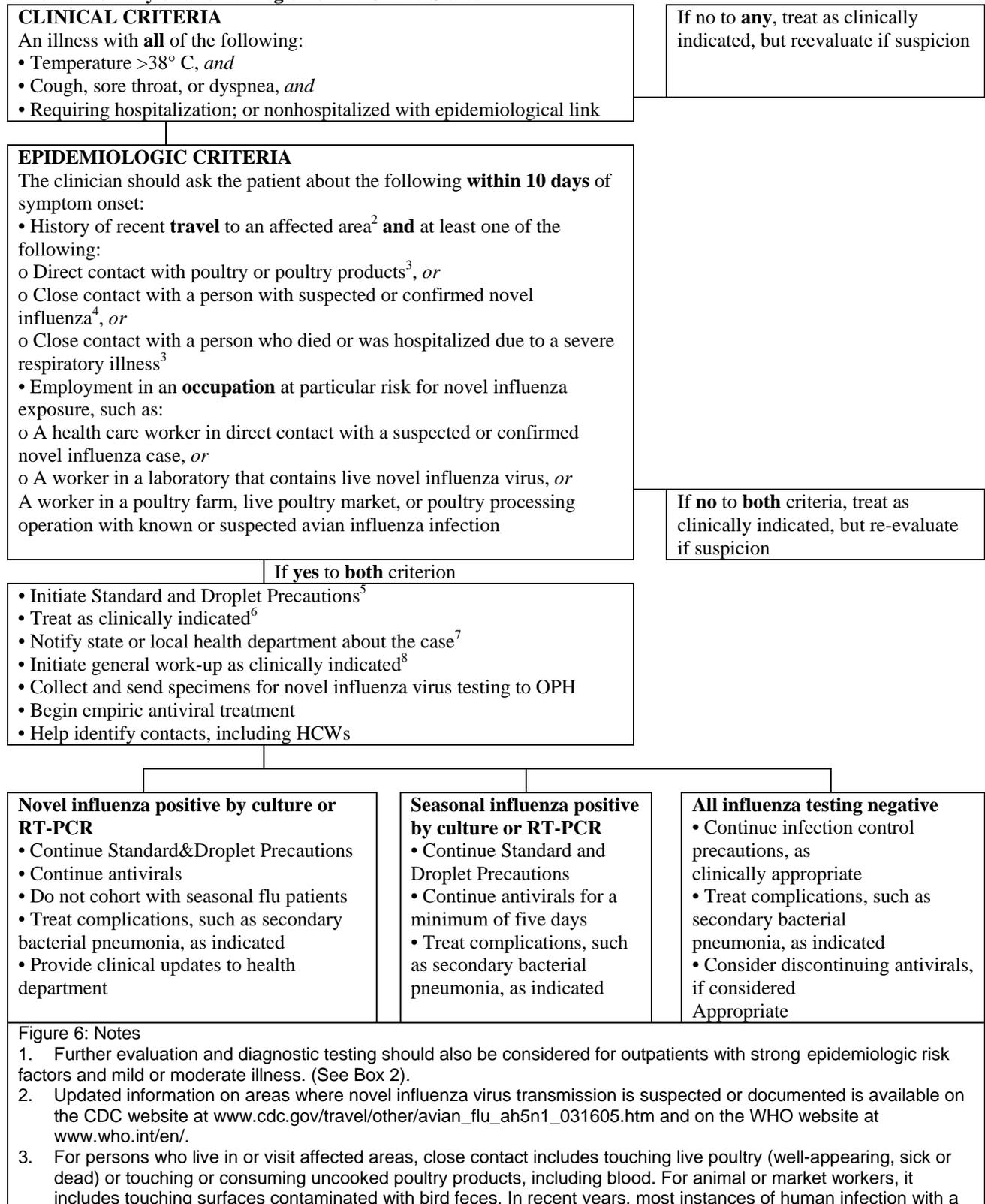
VII.15.16 Management of patients who test positive for novel influenza

VII.15.16.1 If a patient is confirmed to have an infection with a novel influenza virus, healthcare personnel should continue antiviral treatment and all isolation and infection control precautions, and isolate patients with novel influenza from seasonal influenza patients. In addition to prior vaccination against

seasonal influenza, such measures may decrease the risk of co-infection and viral genetic reassortment.

- VII.15.16 Management of patients who test positive for seasonal influenza - Many suspected novel influenza cases may be found to have seasonal human influenza, particularly during the winter season. It should be recognized that human influenza viruses circulate among people worldwide, including in affected areas with poultry outbreaks of avian influenza A viruses during non-seasonal influenza activity in the United States. For patients with confirmed seasonal influenza, maintain Standard and Droplet Precautions, and continue antiviral treatment for a full treatment course (e.g., 5 days).
- VII.15.17 Management of patients who test negative for novel influenza - The sensitivity of the currently available tests for detecting novel influenza viruses in clinical specimens has not been thoroughly evaluated with a full range of specimen types. Consequently, false-negative test results may occur. Therefore, if test results are negative but the clinical and epidemiologic suspicion remains high, continuing antiviral treatment and isolation procedures should be considered. Test results might be negative for influenza viruses for several reasons. Some patients might have an alternate etiology to explain their illness. The general work-up for febrile respiratory illnesses described below should evaluate the most common alternate causes. A certain number of truly infected cases might also test falsely negative, due to specimen collection conditions, to viral shedding that is not detectable, or to sensitivity of the test. Interpretation of negative testing results should be tailored to the individual patient in consultation with hospital infection control and infectious disease specialists, as well as the state or local health department and CDC. In hospitalized patients who test negative for novel influenza but have no alternate diagnosis established, novel-influenza-directed management should be continued if clinical suspicion is high and there is a strong epidemiologic link to exposure to novel influenza. When influenza tests are negative and an alternative diagnosis is established, isolation precautions and antiviral drug therapy for novel influenza may be discontinued based on clinician's assessment, particularly in the absence of a strong epidemiologic link, if the alternative diagnosis is made using a test with a high positive-predictive value, and if the clinical manifestations are explained by the alternative diagnosis.

Figure 6: Case detection and clinical management during the interpandemic and pandemic alert periods - Situation: No human cases of novel influenza are present in the community. Human cases might be present in another country or another region of the United States

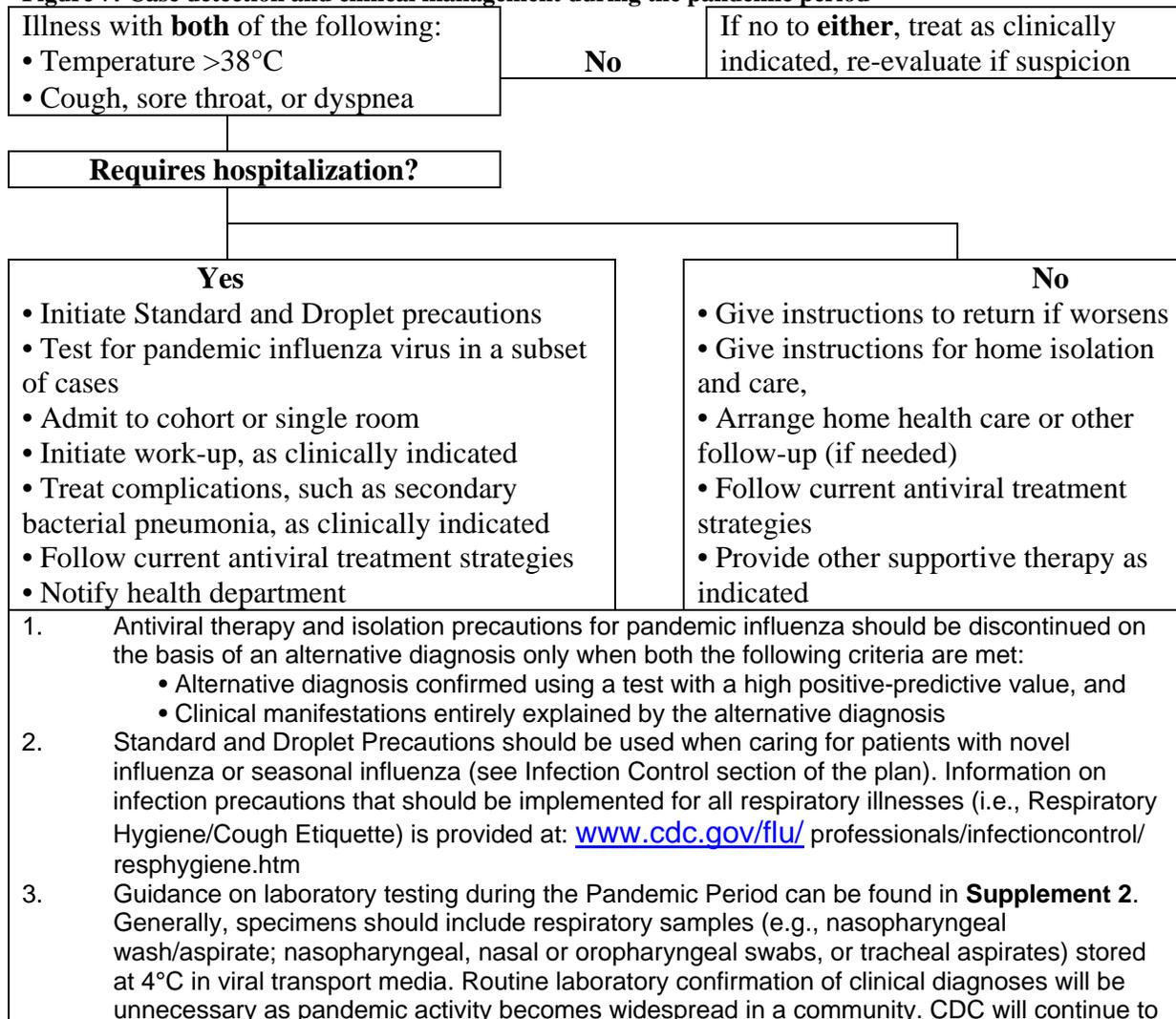


novel influenza A virus having pandemic potential, including influenza A (H5N1), are thought to have occurred through direct transmission from domestic poultry. A small number of cases are also thought to have occurred through limited person-to-person transmission or consumption of uncooked poultry products. Transmission of novel influenza viruses from other infected animal populations or by contact with fecally contaminated surfaces remains a possibility. These guidelines will be updated as needed if alternate sources of novel influenza viruses are suspected or confirmed.

4. Close contact includes direct physical contact, or approach within 3 feet (1 meter) of a person with suspected or confirmed novel influenza.
5. Standard and Droplet Precautions should be used when caring for patients with novel influenza or seasonal influenza. Information on infection precautions that should be implemented for all respiratory illnesses (i.e., Respiratory Hygiene/Cough Etiquette) is provided at:
www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm
6. Hospitalization should be based on all clinical factors, including the potential for infectiousness and the ability to practice adequate infection control. If hospitalization is not clinically warranted, and treatment and infection control is feasible in the home, the patient may be managed as an outpatient. The patient and his or her household should be provided with information on infection control procedures to follow at home. The patient and close contacts should be monitored for illness by local public health department staff.
7. Guidance on how to report suspected cases of novel influenza is provided in **Supplement 1**.
8. The general work-up should be guided by clinical indications. Depending on the clinical presentation and the patient's underlying health status, initial diagnostic testing might include:
 - Pulse oximetry
 - Chest radiograph
 - Complete blood count (CBC) with differential
 - Blood cultures
 - Sputum (in adults), tracheal aspirate, pleural effusion aspirate (if pleural effusion is present) Gram stain and culture
 - Antibiotic susceptibility testing (encouraged for all bacterial isolates)
 - Multivalent immunofluorescent antibody testing or PCR of nasopharyngeal aspirates or swabs for common viral respiratory pathogens, such as influenza A and B, adenovirus, parainfluenza viruses, and respiratory syncytial virus, particularly in children
 - In adults with radiographic evidence of pneumonia, *Legionella* and pneumococcal urinary antigen testing
 - If clinicians have access to rapid and reliable testing (e.g., PCR) for *M. pneumoniae* and *C. pneumoniae*, adults and children <5 yrs with radiographic pneumonia should be tested.
 - Comprehensive serum chemistry panel, if metabolic derangement or other end-organ involvement, such as liver or renal failure, is suspected
9. Guidelines for novel influenza virus testing can be found in the Laboratory section of the plan. All of the following respiratory specimens should be collected for novel influenza A virus testing: nasopharyngeal swab; nasal swab, wash, or aspirate; throat swab; and tracheal aspirate (for intubated patients), stored at 4°C in viral transport media; and acute and convalescent serum samples.
10. Strategies for the use of antiviral drugs are provided in Antiviral section of the plan.
11. Guidelines for the management of contacts in a healthcare setting are provided in the Infection Control section of the plan.
12. Given the unknown sensitivity of tests for novel influenza viruses, interpretation of negative results should be tailored to the individual patient in consultation with the local health department. Novel influenza directed management may need to be continued, depending on the strength of clinical and epidemiologic suspicion. Antiviral therapy and isolation precautions for novel influenza may be discontinued on the basis of an alternative diagnosis. The following criteria may be considered for this evaluation:
 - Absence of strong epidemiologic link to known cases of novel influenza
 - Alternative diagnosis confirmed using a test with a high positive-predictive value
 - Clinical manifestations explained by the alternative diagnosis

VII.17 Clinical guidelines for the pandemic period - During the Pandemic Period, the primary goal of rapid detection is to appropriately identify and triage cases of pandemic influenza. During this period, outpatient clinics and emergency departments might be overwhelmed with suspected cases, restricting the time and laboratory resources available for evaluation. In addition, if the pandemic influenza virus exhibits transmission characteristics similar to those of seasonal influenza viruses, illnesses will likely spread throughout the community too rapidly to allow the identification of obvious exposures or contacts. Evaluation will therefore focus predominantly on clinical and basic laboratory findings, with less emphasis on laboratory diagnostic testing (which may be in short supply) and epidemiologic criteria. Nevertheless, clinicians in communities without pandemic influenza activity might consider asking patients about recent travel from a community with pandemic influenza activity or close contact with a suspected or confirmed pandemic influenza case. The main features of clinical management during the Pandemic Period are outlined in Figure 7.

Figure 7: Case detection and clinical management during the pandemic period



- work with state health laboratories to conduct virologic surveillance to monitor antigenic changes and antiviral resistance in the pandemic virus strains throughout the Pandemic Period.
4. The decision to hospitalize should be based on a clinical assessment of the patient and the availability of hospital beds and personnel.
 5. Guidelines on cohorting can be found in the Infection Control section of the plan. Laboratory confirmation of influenza infection is recommended when possible before cohorting patients.
 6. The general work-up should be guided by clinical indications. Depending on the clinical presentation and the patient's underlying health status, initial diagnostic testing might include:
 - Pulse oximetry
 - Chest radiograph
 - Complete blood count (CBC) with differential
 - Blood cultures
 - Sputum (in adults) or tracheal aspirate Gram stain and culture
 - Antibiotic susceptibility testing (encouraged for all bacterial isolates)
 - Multivalent immunofluorescent antibody testing of nasopharyngeal aspirates or swabs for common viral respiratory pathogens, such as influenza A and B, adenovirus, parainfluenza viruses, and respiratory syncytial virus, particularly in children
 - In adults with radiographic evidence of pneumonia, *Legionella* and pneumococcal urinary antigen testing
 - If clinicians have access to rapid and reliable testing (e.g., PCR) for *M. pneumoniae* and *C. pneumoniae*, adults and children <5 yrs with radiographic pneumonia should be tested.
 - Comprehensive serum chemistry panel, if metabolic derangement or other end-organ involvement, such as liver or renal failure, is suspected (see Appendix 2 for additional details).
 7. Guidance on the evaluation and treatment of community acquired pneumonia and suspected post-influenza community-acquired bacterial pneumonia are provided in Appendix 3.
 8. Strategies for the use of antiviral drugs are provided in the Antiviral Drug section of this plan.
 9. Guidance on the reporting of pandemic influenza cases is provided in the Surveillance section of the plan.
 10. Patients with mild disease should be provided with standardized instructions on home management of fever and dehydration, pain relief, and recognition of deterioration in status. Patients should also receive information on infection control measures to follow at home (Appendix 4). Patients cared for at home should be separated from other household members as much as possible. All household members should carefully follow recommendations for hand hygiene, and tissues used by the ill patient should be placed in a bag and disposed of with other household waste. Infection within the household may be minimized if a primary caregiver is designated; ideally, someone who does not have an underlying condition that places them at increased risk of severe influenza disease. Although no studies have assessed the use of masks at home to decrease the spread of infection, using a surgical or procedure mask by the patient or caregiver during interactions may be beneficial. Separation of eating utensils for use by a patient with influenza is not necessary, as long as they are washed with warm water and soap.

Criteria for evaluation of patients with possible pandemic influenza

VII.18 Clinical criteria - Suspected cases of pandemic influenza virus infection should meet the criteria for ILI: temperature of $>38^{\circ}\text{C}$ plus either sore throat or cough. Since lower respiratory tract involvement might result in dyspnea (shortness of breath), dyspnea should be considered as an additional criterion. Therefore, the full clinical criteria are: fever plus one of the following: sore throat, cough, or dyspnea. Although past influenza pandemics have most frequently resulted in respiratory illness, the next pandemic influenza virus strain might present with a

different clinical syndrome (see Appendix 1 and Appendix 2). During a pandemic, updates on other clinical presentations will be provided at: www.pandemicflu.gov and www.cdc.gov/flu/. Recommendations for general evaluation of patients with influenza-like illness are provided in Appendix 2. Exceptions to the clinical criteria are provided in Appendix 3.

VII.19 Epidemiologic criteria - During the Pandemic Period, an exposure history will be marginally useful for clinical management when disease is widespread in a community. In addition, there will be a relatively high likelihood that any case of ILI during that time period will be pandemic influenza. Once pandemic influenza has arrived in a particular locality, clinical criteria will be sufficient for classifying the patient as a suspected pandemic influenza case.

VII.20 Initial management of patients who meet the criteria for pandemic influenza - When a patient meets the criteria for a suspected case of pandemic influenza, healthcare personnel should initiate the following activities:

VII.20.1 Follow local and state health department recommendations on reporting for patients who meet the criteria for pandemic influenza. See the section on Surveillance of the plan for guidance on case reporting during the Pandemic Period.

VII.20.2 If the patient is hospitalized, implement infection control precautions for pandemic influenza, including Respiratory Hygiene/Cough Etiquette (see section on Infection Control of the plan). Place the patient on Droplet Precautions for a minimum of five days from the onset of symptoms. Healthcare personnel should wear surgical or procedure masks on entering a patient's room, as per Droplet Precautions, as well as gloves and gowns when indicated, as per Standard Precautions. Once a pandemic is underway, hospital admission of patients should be limited to those with severe complications who cannot be cared for outside the hospital setting. Patients should be admitted to either a single-patient room or an area designated for cohorting of patients with influenza. Patient movement and transport outside the isolation area should be limited to medically necessary purposes

VII.20.3 Obtain clinical specimens for general evaluation, as clinically indicated (see Box 2). Once pandemic influenza has arrived in a community, influenza testing will likely not be needed for most patients. Laboratory testing in conjunction with health departments will likely be performed in a subset of pandemic influenza cases, however, as part of ongoing virologic surveillance to monitor the antigenic evolution of the strains for vaccine strain selection purposes. At the beginning or end of a pandemic outbreak in a community, diagnostic testing might aid cohorting decisions, but may be optional in the setting of high local prevalence. Influenza

diagnostic testing should be considered before initiating treatment with antivirals.

- VII.20.4 As with seasonal influenza, RT-PCR and virus isolation from tissue culture will be the most accurate methods for diagnosing pandemic influenza. Generally, specimens should include combined nasopharyngeal aspirates or nasal swabs, and throat swabs, stored at 4°C in viral transport media. During the Pandemic Period, BSL-2 conditions should be sufficient for viral culture of clinical specimens from suspected pandemic influenza patients. Rapid diagnostic tests for influenza and immunofluorescence may be helpful for initial clinical management, including cohorting and treatment (see above). However, rapid influenza tests have relatively low sensitivity for detecting seasonal influenza, and their ability to detect pandemic influenza viruses is unknown. The sensitivity of rapid diagnostic tests will likely be higher in specimens collected within two days of illness onset, in children, and when tested at clinical laboratories that perform a high volume of testing. Because during a pandemic a negative rapid test may be a false negative, test results need to be interpreted within the overall clinical context. For example, it may not be optimal to withhold antiviral treatment from a seriously ill high risk patient on the basis of a negative test; however, in a setting of limited antiviral drug availability, treatment decisions in less high risk situations could be based on test results. The risk of a false-negative test also must be taken into account in making cohorting decisions. Rapid diagnostic testing should not preclude more reliable testing, if available.
- VII.20.5 Decide on inpatient or outpatient management. The decision to hospitalize a suspected pandemic influenza case will be based on the physician's clinical assessment of the patient as well as the availability of hospital beds and personnel. An unstable patient will be considered a high priority for admission, but patients with high-risk conditions might also warrant special attention, such as observation or close follow-up, even if disease is mild. On the other hand, home management with follow-up might be appropriate for well-appearing young children with fever alone. Patients cared for at home should be separated from other household members as much as possible. All household members should carefully follow recommendations for hand hygiene, and tissues used by the ill patient should be placed in a bag and disposed with other household waste (Appendix 4). Infection within the household may be minimized if a primary caregiver is designated; ideally, someone who does not have an underlying condition that places them at increased risk of severe influenza

- disease. Although no studies have assessed the use of masks at home to decrease the spread of infection, using a surgical or procedure mask by the patient or caregiver during interactions may be of benefit. Separation of eating utensils for use by a patient with influenza is not necessary, as long as they are washed with warm water and soap
- VII.20.6 Clinical management of pandemic influenza patients - In addition to use of antivirals, clinical management of severe influenza should address supportive care and the rapid identification and treatment of secondary complications. During the Pandemic Period, CDC may request virus isolates from persons who fail treatment or antiviral prophylaxis, as these strains may more likely be drug resistant. In addition, randomly collected isolates will be tested for resistance to establish nationwide rates.
- VII.20.7 Children aged <18 years with suspected or confirmed pandemic influenza should not be treated with aspirin or other salicylate-containing products because of an increased risk of Reye syndrome (characterized by acute encephalopathy and liver failure) in this age group.
- VII.20.8 Ribavirin and immunomodulatory therapies, such as steroids, are not approved by the FDA for treatment of severe influenza of any type and are purely investigational at this time. These agents frequently have severe adverse effects, such as bone marrow and hepatic toxicity, while the benefits of these therapies are unknown.
- VII.20.9 The major clinical presentations and complications related to seasonal human influenza occur more commonly in persons with certain underlying medical conditions, such as chronic respiratory or cardiovascular disease and extremes of age, and are described in Appendix 1. Limited data are available on risk factors and complications related to infection with novel influenza viruses, and these may change as individual strains evolve. A summary of the clinical presentations and complications associated with recent influenza A (H5N1) viruses is included in Appendix 2. In particular, post-influenza community-acquired pneumonia will likely be a commonly encountered complication, and clinicians will need to be aware of recommended methods for diagnosis and treatment. Guidance on the management of influenza-related pneumonia is presented in Appendix 3.

VII. Clinical Guidelines

Appendix 1. Clinical presentation and complications of seasonal influenza

Although often quite characteristic, the clinical picture of seasonal influenza can be indistinguishable from illness caused by other respiratory infections. The frequent use of non-specific terms such as "flu" and

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"influenza-like illness" makes the clinical diagnosis of influenza even more indefinite. Even when the diagnosis of influenza is confirmed, management can be challenging, as influenza virus infection can result in subclinical infection, mild illness, uncomplicated influenza, or exacerbation of underlying chronic conditions to fulminant deterioration, and can result in a wide variety of complications.

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Appendix 2. Presentations and complications of seasonal human influenza

This appendix provides a brief description of the common presentations and complications of seasonal human influenza. Novel and pandemic influenza viruses might, however, cause quite 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. It will be essential to describe and disseminate the clinical features of novel or pandemic influenza cases as soon as they are identified. Appendix 2 includes a brief clinical summary of illnesses associated with previous influenza pandemics and with avian influenza A (H5N1) virus in humans.

Presentation

- A typical case of uncomplicated seasonal influenza begins abruptly and is manifested by systemic symptoms such as fever, chills, myalgias, anorexia, headache, and extreme fatigue. Fever typically lasts 2–3 days and usually reaches 38–40°C, but can be higher (particularly in children).
- Respiratory tract symptoms such as nonproductive cough, sore throat, and upper respiratory congestion occur at the same time, although these may be overshadowed by systemic complaints.
- Physical examination typically reveals fever, weakness, mild inflammation of the upper respiratory tract, and rare crackles on lung examination, but none of these findings is specific for influenza.
- In uncomplicated illness, major symptoms typically resolve after a limited number of days, but cough, weakness, and malaise can persist for up to 2 weeks.
- In the elderly and in infants, the presenting signs can include respiratory symptoms with or without fever, fever only, anorexia only, lassitude, or altered mental status. In children, fevers are often higher than in adults and can lead to febrile seizures. Gastrointestinal manifestations (e.g., vomiting, abdominal pain, diarrhea) occur more frequently in children. Fever or apnea without other respiratory symptoms might be the only manifestations in young children, particularly in neonates.

Influenza is difficult to distinguish from illnesses caused by other respiratory pathogens on the basis of symptoms alone. Fever and cough, particularly in combination, are modestly predictive of influenza in unvaccinated adults, as is the combination of fever, cough, headache, and pharyngitis in children. Other constitutional signs and symptoms, such as chills, rigors, diaphoresis, and myalgias, are also suggestive. The positive predictive value of any clinical definition is strongly dependent on the level of influenza activity and the presence of other respiratory pathogens in the community.

Routine laboratory findings

No routine laboratory test results are specific for influenza. Leukocyte counts are variable, although thrombocytopenia and severe leukopenia have been described in fulminant cases. Leukocytosis of >15,000 cells/ml should raise suspicion for a secondary bacterial process. Comprehensive laboratory

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Appendix 2. Presentations and complications of seasonal human influenza

testing might reveal other influenza-related complications (see below).

Differential diagnosis

The fever and respiratory manifestations of seasonal influenza are not specific and can occur with several other pathogens, including respiratory syncytial virus (RSV), parainfluenza viruses, adenoviruses, human metapneumovirus, rhinoviruses, coronaviruses, and *Mycoplasma pneumoniae*. In contrast to influenza viruses, most of these pathogens do not usually cause severe disease, particularly in previously healthy adults. RSV and parainfluenza viruses can, however, lead to severe respiratory illness in young children and the elderly and should be considered in the differential diagnosis if circulating in the community.

Even if an alternate etiology is determined, viral or bacterial co-infections can still be a possibility. The tendency for influenza to occur in community epidemics and to affect persons of all ages can sometimes allow the clinician to diagnose seasonal influenza with reasonable certainty in the absence of laboratory testing. Nevertheless, a definitive diagnosis requires laboratory testing. Rapid influenza diagnostic tests and immunofluorescence testing using a panel of respiratory pathogens have become increasingly available for aiding clinical management of patients with suspected influenza. Further information on diagnostic testing for influenza can be found at <http://www.cdc.gov/flu/professionals/labdiagnosis.htm>.

Complications

Groups at risk for complications of influenza - The following groups are currently recognized by the Advisory Committee on Immunization Practices (ACIP) to be at higher risk for complications of seasonal influenza (e.g., hospitalization; death) compared to healthy older children and younger adults:

- Persons aged 65 years
- Residents of nursing homes and other chronic-care facilities that house persons of any age who have chronic medical conditions
- Adults and children who have chronic disorders of the pulmonary or cardiovascular systems, including asthma
- Adults and children who required regular medical follow-up or hospitalization during the previous year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or by infection with human immunodeficiency virus [HIV])
- Children and adolescents (aged 6 months–18 years) who are receiving long-term aspirin therapy (and are therefore at risk for Reye syndrome)
- Pregnant women
- All children aged <2 years
- All persons with conditions that can compromise respiratory function or the handling of respiratory secretions, or that can increase the risk of aspiration. Excluding the last group, in 2003 approximately 85 million persons in the United States belonged to one or more of these target groups.

Types of influenza complications

Exacerbations of underlying chronic diseases are the most common serious complications of influenza. Complications are frequently related to underlying respiratory disease, such as chronic obstructive pulmonary disease (COPD). In some cases, typical influenza symptoms might be brief or minimal compared to the exacerbation of the underlying disease, particularly in the elderly.

Secondary bacterial pneumonia, another common complication, is characterized by an initial

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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, in adults, sputum smears positive for leukocytes and bacteria. The most commonly isolated pathogens are *Streptococcus pneumoniae*, *Staphylococcus aureus*, group A *Streptococcus*, and *Haemophilus influenzae*. Influenza virus infection can also result in a primary viral pneumonia. A prominent feature of previous influenza pandemics, primary influenza viral pneumonia is currently a relatively rare outcome of seasonal influenza in adults. In contrast, children with pneumonia are more likely to have a viral etiology, including influenza than a bacterial cause. Primary influenza pneumonia usually begins abruptly, with rapid progression to severe pulmonary disease within 1–4 days. Physical and radiologic findings are consistent with diffuse interstitial and/or alveolar disease, including bilateral inspiratory crackles on auscultation and diffuse pulmonary infiltrates on chest radiographs. Hypoxia and hemoptysis indicate a poor prognosis, and recovery can take up to 1–2 weeks. Mixed viral-bacterial pneumonia is slightly more common than primary viral pneumonia, and, although mixed pneumonia may have a slower progression, the two are often indistinguishable. Bacterial pathogens in mixed infections are similar to those found in secondary bacterial pneumonias.

Bronchiolitis due to influenza is more common in children, with a clinical picture similar to that of RSV or parainfluenza virus infections. Influenza is a cause of croup (laryngotracheobronchitis) in children, and, although influenza viruses are a less common etiology than other respiratory viruses, the illness can be more severe. Children with influenza can also develop otitis media, due to either direct viral infection or secondary bacterial involvement. Similarly, bacterial sinusitis can develop in older children and adults with influenza.

Seasonal influenza can cause a range of cardiovascular complications, most commonly as an exacerbation of an underlying condition such as congestive heart failure. Pregnant women and children with congenital heart defects can also experience worsening cardiac function during an influenza illness. Cardiac inflammation, such as myocarditis and pericarditis, can be found occasionally, although clinical manifestations are rare. Available reports suggest that myocarditis might have occurred more frequently during pandemic years. Influenza virus is not typically identified in heart tissue, suggesting that the host inflammatory response might play a role. Although influenza has been associated in rare instances with sudden death possibly due to cardiac arrhythmia, this outcome has been difficult to investigate.

Gastrointestinal involvement is uncommon with seasonal influenza, although more commonly reported in children. Manifestations can include vomiting and diarrhea, sometimes leading to significant dehydration.

Myositis related to influenza is another complication more commonly found in children, although more frequently associated with influenza B. Involvement may be limited to pain and weakness of the lower extremities but can progress to rhabdomyolysis and renal failure in some cases.

Among the neurologic complications associated with seasonal influenza, uncomplicated self-limited febrile seizures are the most common, usually occurring in younger children with high fever. Influenza-associated encephalopathy, characterized by an acute alteration in mental status within the first few days of fever onset, is a recently recognized complication of influenza in children. Most reports of influenza-associated encephalopathy have been in Japanese children, but the condition has been reported sporadically in other countries, including the United States. The syndrome can include seizures, neurologic deficits, obtundation, and coma. While most children recover completely, some cases can result in permanent sequelae or death. This condition might be due to an abnormal host inflammatory response without viral infection of the central nervous system. Guillain-Barre syndrome and transverse myelitis have been reported to occur in very rare instances after influenza, but no definite etiologic relationship has been established. Reye syndrome is another serious neurologic complication associated with influenza. It is characterized by an acute encephalopathy

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combined with hepatic failure in the absence of inflammation in either the brain or the liver.

Transient hepatic inflammation can occur in rare circumstances. Hepatic involvement includes fatty infiltration, hypoglycemia, and hyperammonemia, whereas neurologic manifestations include cerebral edema, delirium, coma, and respiratory arrest. Reye syndrome was found to be associated with the use of aspirin in children; its incidence has decreased dramatically since the 1980s after aspirin use was discouraged in children.

Seasonal influenza can be associated with systemic complications, such as sepsis and shock. Sepsis caused by invasive co-infection with *Staphylococcus aureus*, including methicillin-resistant *S. aureus* (MRSA), or other bacteria, such as *Neisseria meningitidis* has been reported. Toxic shock syndrome without bacterial co-infection has also been reported.

Appendix 2. Clinical presentation and complications of illnesses associated with avian influenza a (H5N1) and previous pandemic influenza viruses

Human infections with different avian influenza A viruses have emerged and caused mild to severe illness in recent years, including H9N2, H7N7, H7N3, and H7N2. One novel subtype, influenza A (H5N1), has repeatedly caused limited outbreaks of severe and fatal human disease in recent years and therefore has been of particular concern.

Human infection with avian influenza A (H5N1)

The H5N1 subtype first came to widespread public attention in 1997, when a poultry outbreak of highly pathogenic avian influenza A (H5N1) in Hong Kong caused illness in 18 humans. These cases were the first identified instances of direct avian-to-human transmission of an avian influenza A virus that led to severe disease. Clinical features ranged from asymptomatic infection or mild upper respiratory symptoms to severe pneumonia and death. Most cases presented with fever, headache, malaise, myalgia, sore throat, cough, and rhinorrhea; a few persons also had conjunctivitis or gastrointestinal distress. Seven persons, mostly children, developed only mild upper respiratory infections, whereas 11 developed severe primary viral pneumonia with rapid deterioration. Most patients in this latter group developed lymphopenia; six developed acute respiratory distress syndrome (ARDS), and five developed multi-organ system failure. Other abnormalities included pulmonary hemorrhage, renal dysfunction, liver failure, pancytopenia, hemophagocytosis, and Reye syndrome (with aspirin ingestion). Notably, none of the patients had secondary bacterial pneumonia. Six of the 18 infected persons eventually died.

Avian influenza A (H5N1) resurfaced in Hong Kong in February 2003, in a father and son returning from Fujian Province, China. Both presented with influenza-like symptoms, chest radiograph abnormalities, and lymphopenia. The father's status rapidly deteriorated, and he developed severe lung involvement and hemophagocytosis; the 8-year-old son recovered. Of note, the father's 7-year-old daughter had also died of a pneumonia-like illness while in China, but the cause of her illness was not determined. The boy reported close contact with live chickens during his visit to China, but no definite source for H5N1 was found.

The most recent human outbreak of avian influenza A (H5N1) has been ongoing since December 2003. This outbreak has been associated with an extensive H5N1 epizootic among poultry in Asia. Transmission continues to be predominantly from birds to humans, although a few instances of limited human-to-human transmission have been suspected.

Reports published from Vietnam and Thailand describe the early confirmed H5N1 cases from this outbreak. These reports characterize human illness with avian influenza A (H5N1) virus infection as a primarily respiratory febrile illness that progresses to severe disease in a high proportion of cases. Among 10 Vietnamese patients, 5 all were previously healthy children or young adults (mean age,

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13.7 years) who presented to medical attention with fever, cough, and dyspnea. None of the patients had other respiratory symptoms, such as sore throat or rhinorrhea, but seven developed diarrhea. Significant lymphopenia was observed in all 10 cases, and moderate thrombocytopenia occurred. All 10 had marked abnormalities on chest radiograph, and eight patients—all of whom eventually died—required mechanical ventilation for respiratory failure. Respiratory cultures suggested bacterial pneumonia in two patients. Of 12 cases described from Thailand,⁶ seven were aged <14 years, and all but one were previously healthy. All of the patients developed fever, cough, and dyspnea, and six patients were reported with myalgia and diarrhea. Decreased leukocyte counts were reported in seven cases, thrombocytopenia occurred in four cases, and increased serum liver enzymes were found in eight. All patients had negative blood cultures. They all had abnormal chest radiographs; nine developed respiratory failure with ARDS, whereas five developed cardiac failure, four had renal failure, and eight ultimately died. In the Vietnamese and Thai cases, respiratory deterioration occurred a median of 5 days after symptom onset, but the range was quite wide.

Whereas all patients described above presented with pulmonary symptoms, subsequently published case reports suggest that other clinical syndromes can occur with H5N1 infection.^{7,8,9} In one report, a 39-year-old female with confirmed H5N1 from Thailand was initially admitted with symptoms of fever, vomiting, and diarrhea, and was found to have significant lymphopenia. She developed shortness of breath approximately 12 days after illness onset and soon progressed to ARDS and death. A 4-year-old male from Vietnam presented for medical attention with severe diarrhea, developed acute encephalitis with coma, and died soon thereafter. Although avian influenza A (H5N1) was later detected in throat, stool, serum, and cerebrospinal fluid specimens, the patient had no respiratory symptoms at presentation. This patient's 9-year-old sister died of a similar illness a few days before his illness began, but no H5N1 testing was performed. Asymptomatic H5N1 infection, detected by seroconversion, has been reported.

Illnesses associated with previous pandemic viruses

Since most people do not have previous immunity to novel influenza A viruses, an influenza pandemic results in an increased rate of severe disease in a majority of age groups. Nevertheless, the three pandemics of the past century demonstrated significant variability in terms of morbidity. The 1918–19 pandemic was particularly notable in affecting young, healthy adults with severe illness. A significant proportion of patients developed fulminant disease, accompanied by a striking perioral cyanosis, leading to death within a few days. Postmortem examinations in these patients frequently revealed denuding tracheobronchitis, pulmonary hemorrhage, or pulmonary edema. Others survived the initial illness, only to die of a secondary bacterial pneumonia, usually due to *Streptococcus pneumoniae*, *Staphylococcus aureus*, group A *Streptococcus*, or *Haemophilus influenzae*.

The clinical features of the subsequent pandemics of 1957–58 and 1968–69 were also typical of influenza-like illness, including fever, chills, headache, sore throat, malaise, cough, and coryza, but were milder compared to the 1918–19 pandemic. On a population level, the impact of influenza in 1957–58 was only one-tenth that observed in 1918–19, and the excess death rate in 1968–69 was only half that observed during 1957–58. However, death rates were elevated among the chronically ill and the elderly, and the occurrence of severe complications, such as primary viral pneumonia, was notably increased in healthy young adults during the 1957–58 pandemic, particularly in pregnant women.

Implications for the next pandemic

The characteristic clinical features of the next influenza pandemic cannot be predicted. It is reasonable to assume that most affected persons will have the typical features of influenza (e.g., fever, respiratory symptoms, myalgia, malaise). However, past pandemics have varied considerably with regard to severity and associated complications. Illnesses caused by novel influenza

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viruses such as avian influenza A (H5N1) might predict the potential characteristics of pandemic influenza, but H5N1 has not adapted to spread easily among humans, and its presentation and severity might change as the virus evolves. Even as the next pandemic begins and spreads, the characteristic features might change, particularly if successive waves occur over several months. Given this potential for a dynamic clinical picture, it will be important for clinicians and public health partners to work together to disseminate updated and authoritative information to the healthcare community on a regular basis.

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Appendix 3. Guidelines for management of community-acquired Pneumonia, including post-influenza community-acquired pneumonia

Rationale

Post-influenza bacterial community-acquired pneumonia will likely be a common complication during the next pandemic and might affect approximately 10% of persons with pandemic influenza, based on data from previous influenza pandemics. Assuming that pandemic influenza will affect about 15%–35% of the U.S. population, approximately 4.4 to 10.2 million cases of post-influenza bacterial community-acquired pneumonia could occur.

Post-influenza bacterial community-acquired pneumonia often presents as a return of fever, along with a productive cough and pleuritic chest pain, after an initial improvement in influenza symptoms over the first few days. Findings include lobar consolidation on chest x-ray and, in adults, sputum smear positive for leukocytes and bacteria. As with other bacterial infections, leukocytosis with increased immature forms may be present, but this finding is neither sensitive nor specific. The most common etiologies of post-influenza bacterial pneumonia are *Streptococcus pneumoniae*, *Staphylococcus aureus*, group A *Streptococcus*, and *Haemophilus influenzae*. Primary viral pneumonia, with abrupt onset and rapid progression, is more common than bacterial pneumonia in children, yet rare in adults. Physical and radiologic findings in viral pneumonia are consistent with interstitial and/or alveolar disease and include bilateral inspiratory crackles and diffuse infiltrates. Mixed viralbacterial pneumonia is slightly more common than primary viral pneumonia, but they are often indistinguishable. Bacterial pathogens in mixed infections are similar to those found in secondary bacterial pneumonias. Droplet and Standard Precautions are currently recommended for community-acquired pneumonia of bacterial etiology.

Treatment of community-acquired pneumonia, including post-influenza bacterial community-acquired pneumonia will pose challenges for clinicians during a pandemic. Secondary bacterial pneumonia following influenza virus infection will be difficult to distinguish from community-acquired pneumonia that is not preceded by influenza. Current guidelines for the treatment of adult community-acquired pneumonia (CAP) during the Interpandemic Period de-emphasize the use of diagnostic testing for pathogen-directed treatment and favor empiric therapy with safe and effective broad-spectrum antibacterials, especially extended-spectrum macrolides and fluoroquinolones. However, these antibacterials will likely be in short supply during a pandemic.

The guidelines in this appendix are therefore designed to assist clinicians in managing patients with community-acquired pneumonia, including post-influenza bacterial community-acquired pneumonia, in a setting of high patient volume and limited clinical resources, where the pressure to treat empirically will likely be even greater than during the Interpandemic Period. For adults, the guidance draws heavily from the current draft guidelines for the management of CAP developed jointly by the Infectious Diseases Society of America (IDSA) and the American Thoracic Society (ATS). For children, the guidance incorporates recommendations from the British Thoracic Society (BTS) a published review,¹³ and expert opinion.

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Prevention

Efforts to maximize vaccination coverage against *Streptococcus pneumoniae* is an important component of post-influenza bacterial community-acquired pneumonia prevention during the Interpandemic, Pandemic Alert, and Pandemic Periods. Current guidelines on the use of the 23-valent pneumococcal polysaccharide vaccine among adults and the 7-valent pneumococcal conjugate vaccine among children are available.^{14,15}

Site of care: inpatient versus outpatient

Adults - IDSA-ATS draft guidelines recommend the use of severity scores, such as the Pneumonia PORT Severity Index (PSI) and the CURB-65 system, to determine which patients can be safely treated as outpatients (Tables 2–5). The use of these or other similar systems could be extremely important during the next pandemic, as hospital beds will be in short supply. However, these systems should be used to supplement rather than replace the judgment of the individual clinician.

Children - Current guidelines provide indicators for hospitalization of children with CAP. For infants, the indications include temperature >38.5 C, respiratory rate (RR) >70 breaths per minute, chest retractions (indrawing), nasal flaring, hypoxia, cyanosis, intermittent apnea, grunting, and poor feeding. Indications for hospitalization among older children include temperature >38.5 C, RR >50, chest retractions, nasal flaring, hypoxia, cyanosis, grunting, and signs of dehydration. As with pandemic influenza, the decision to hospitalize for post-influenza bacterial community-acquired pneumonia during the Pandemic Period will rely on the physician's clinical assessment of the patient as well as availability of personnel and hospital resources. Although an unstable patient will be considered a high priority for admission, patients with certain highrisk conditions might also warrant special attention. Home management with follow-up might be appropriate for well-appearing young children with fever alone.

Diagnostic testing

Adults - Generally, the etiologies associated with CAP during the Interpandemic Periods will continue to occur during a pandemic. Familiarity with the appropriate use of available diagnostic tests is therefore a key feature of clinical preparedness. Draft IDSA-ATS guidelines recommend obtaining appropriate specimens for etiologic diagnosis whenever such an etiology would alter clinical care. Given that the most common etiologies of post-influenza bacterial community-acquired pneumonia—*S. pneumoniae* and *S. aureus*, including community-acquired methicillin-resistant *S. aureus* (CA-MRSA)—are treated differently, diagnostic testing should be performed to the extent feasible to distinguish among these pathogens.

- For hospitalized patients, blood cultures, pneumococcal urine antigen testing, and pleural fluid aspiration with Gram stain and culture should be considered.
- Because the diagnostic utility of sputum Gram stain and culture is highly dependent on patient and technical conditions, these are considered optional for hospitalized but non-severe patients.
- For patients admitted to an ICU, aspiration and Gram stain and bacterial culture of endotracheal secretions might also be useful.

Children - Diagnostic studies for identifying bacterial pneumonia in young children are severely limited.

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Appendix 3. Guidelines for management of community-acquired Pneumonia, including post-influenza community-acquired pneumonia

- Blood cultures should be obtained from all children suspected of having post-influenza bacterial community-acquired pneumonia.
- Sputum samples are rarely useful in children, but tracheal or pleural fluid aspirates—if available—should be submitted for Gram stain and bacterial culture.
- If pleural effusions are present, they should be aspirated and submitted for Gram stain and culture.
- When feasible, antibiotic susceptibility testing of any bacterial isolates is encouraged to direct treatment.

Antibiotic treatment - Adults and children

Antibiotics, particularly those needed to treat CAP, will likely be in short supply during the Pandemic Period. Therefore, use of empiric therapy for all persons with post-influenza bacterial community-acquired pneumonia will likely not be feasible. Antimicrobial therapy will have to be driven by culture and susceptibility testing of appropriate clinical specimens and by awareness of local antibiotic susceptibility patterns.

- A history of preceding influenza-like illness, especially when pandemic influenza is circulating in the community, might help to screen patients.
- Empiric therapy in adults should be directed toward the most likely etiologies of post-influenza bacterial community acquired pneumonia.
- Concurrent antiviral treatment might also be beneficial, depending on the timing and presentation of illness

Figure 8: Management of community-acquired pneumonia during an influenza pandemic: adults

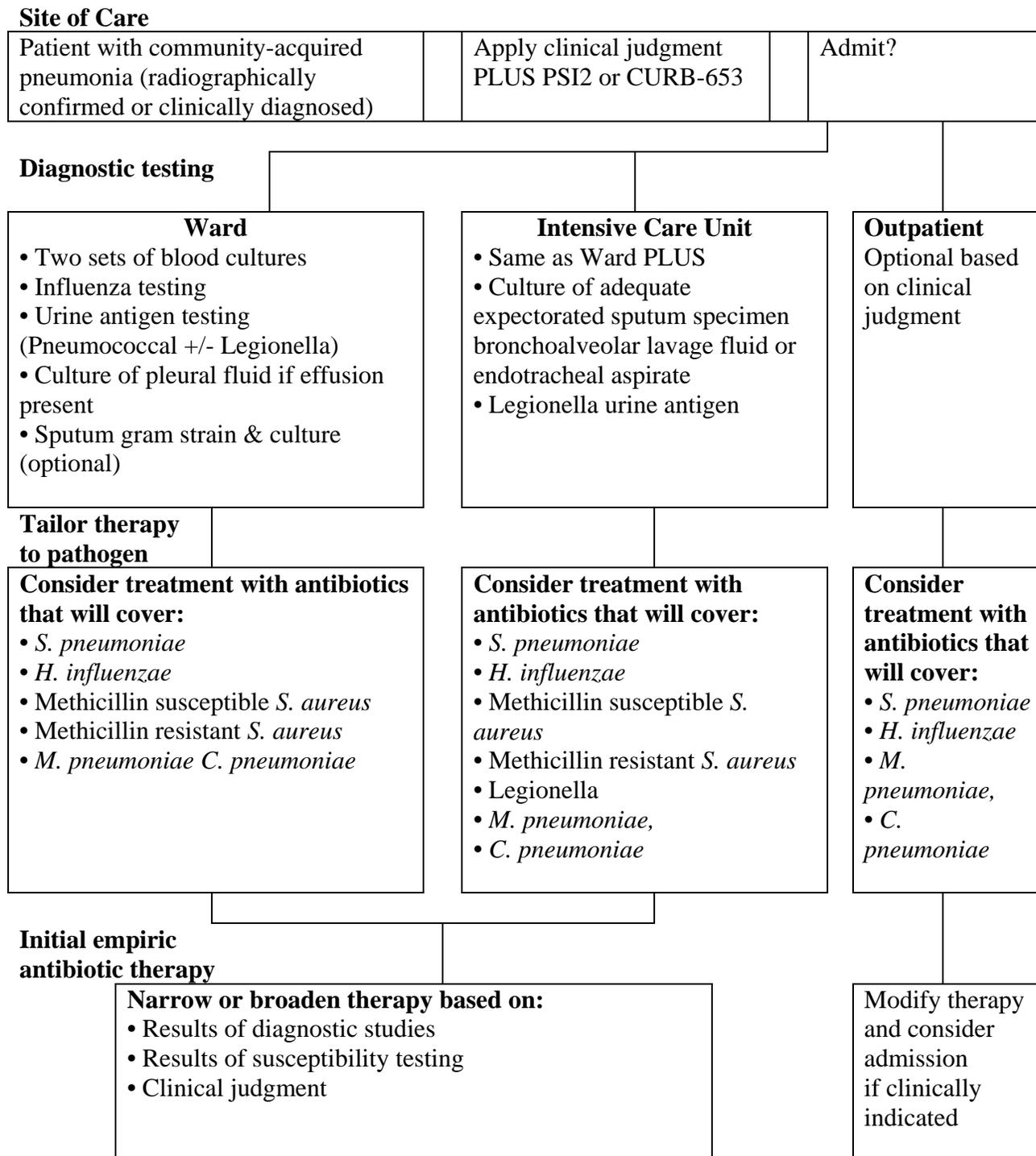
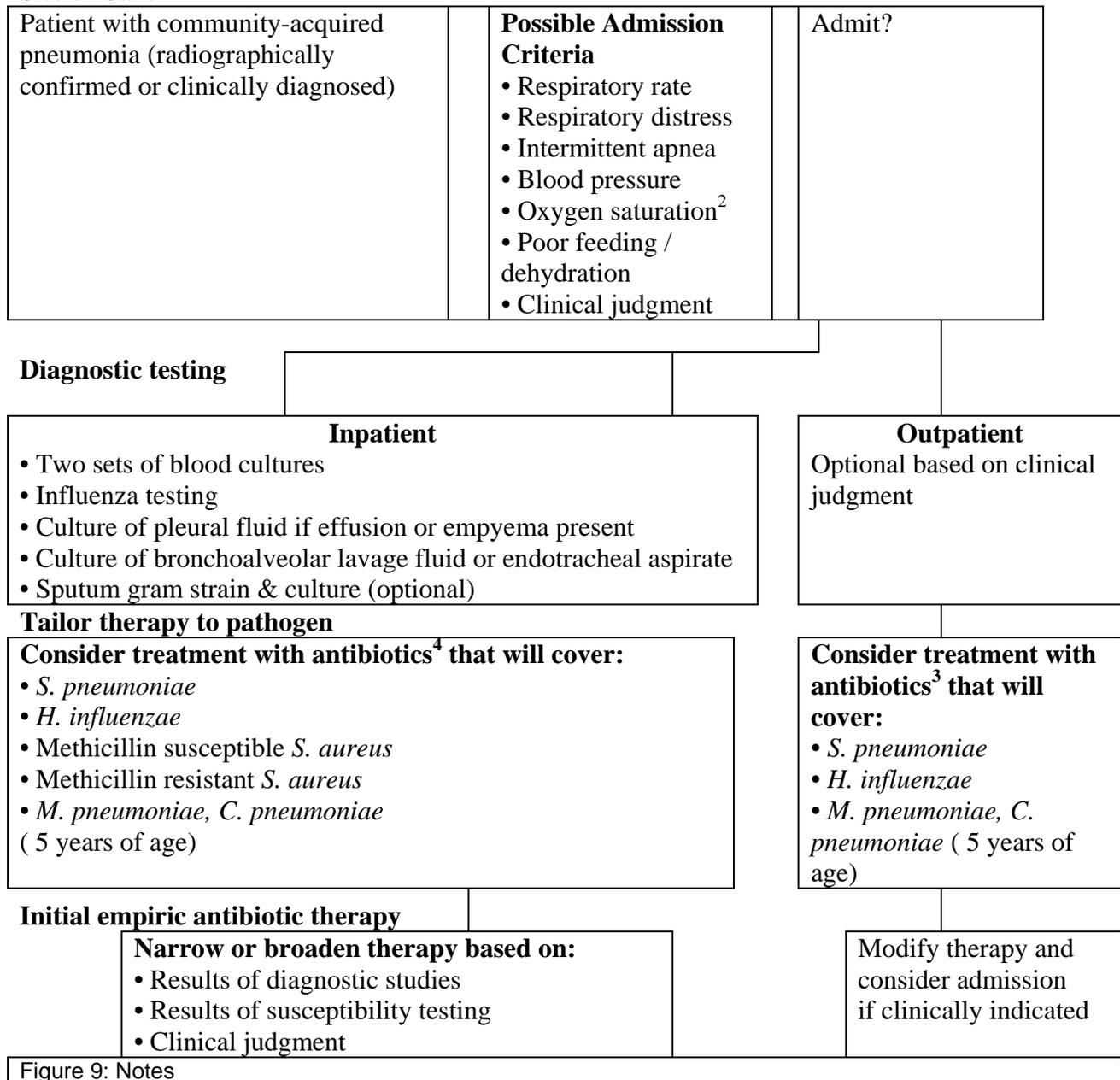


Figure 8: Notes

1. Patients whose chest radiographs show no evidence of CAP should not be treated for CAP.
2. Pneumonia Severity Index (Fine et al. NEJM 1997; 336: 243–50).
3. Confusion, Uremia, Respiratory rate, Blood pressure, Age 65 (Lim et al. Thorax 2003; 58: 377–82).
4. Possible antibiotic regimens for WARD INPATIENTS include
 - β -lactam PLUS macrolide PLUS either vancomycin or linezolid

- Fluoroquinolone PLUS either vancomycin or linezolid.
5. Regimens for INTENSIVE CARE UNIT PATIENTS include those listed for WARD INPATIENTS but should include azithromycin or a fluoroquinolone.
 6. Possible oral antibiotic regimens for OUTPATIENTS include
 - Previously healthy & no use of antimicrobials within the previous 3 months: macrolide or doxycycline.
 - Comorbidities or use of antimicrobials within previous 3 months (choose from a different class): fluoroquinolone, telithromycin, β -lactam PLUS a macrolide.
- In regions with a high rate of "high-level" macrolide-resistant *S pneumoniae*: fluoroquinolone telithromycin.

Figure 9: Management of community-acquired pneumonia during an influenza pandemic: children
Site of Care



1. Although chest radiography is not necessary to make the diagnosis in all pediatric patients with CAP, patients who do undergo chest radiography and whose radiographs show no evidence of CAP should not be treated for CAP.
2. Pulse oximetry should be performed for all children hospitalized with CAP.
3. Possible antibiotic regimens for INPATIENTS include:
 - Children <5 years of age: β -lactam (e.g. Ampicillin, Amoxicillin, Amoxicillin/clavulanic acid,
 - 3rd generation cephalosporin [cefotazime, ceftriazone]) PLUS either vancomycin or linezolid.
 - Children 5 years of age: β -lactam PLUS macrolide PLUS either vancomycin or linezolid.
4. Possible oral antibiotic regimens for OUTPATIENTS include:
 - Children <5 years of age: β -lactam (e.g. Amoxicillin, Amoxicillin/clavulanic acid).
 - Children 5 years of age: β -lactam (e.g. Amoxicillin, Amoxicillin/clavulanic acid) or a macrolide depending on clinical severity. *M. pneumoniae* & *C. pneumoniae* generally present with less severe illness than *S. pneumoniae* or *H. influenzae*.

VIII. Vaccine Distribution and Use

Recommendations for the Inter-pandemic and Pandemic Alert Periods

- VIII.1 Vaccination of susceptible individuals is the primary means to prevent disease and death from influenza during an epidemic or pandemic. The Advisory Committee on Immunization Practices (ACIP) produces annual recommendations on the use of influenza vaccine in persons who are at risk for influenza or for those who could spread influenza to persons at greatest risk. These inter-pandemic recommendations are also published annually in Louisiana using a variety of media options. The annual distribution and administration of vaccine for each winter's predicted strain of influenza is a collaborative process involving both the public and private sectors. The vaccine type is predicted annually by the Centers for Disease Control and Prevention (CDC) approximately 18 months before the anticipated influenza season. Two U.S. and one British Pharmaceutical manufacturers produce approximately 70 to 80 million doses over a six to eight month production period with the influenza vaccine ready for distribution from October through February.
- VIII.2 Except for some children under 9 years of age, effective immunization is generally achieved with a single dose of vaccine. Approximately 90 percent of the vaccine is administered by the private sector and is directed toward high-risk individuals as defined by the ACIP.
- VIII.3 As with past fluctuations in production capacity of the annual influenza vaccine, it is anticipated that there will be a relative delay and shortage in the availability of a pandemic vaccine should a pandemic occur. Prioritization of persons who should receive the initial doses of vaccine will be necessary. As information about the impact of the novel virus becomes available, recommendations will be formulated at the national level, which may need to be adapted at the state level depending on local factors. The State of Louisiana, DHH/OPH Immunization Program will build upon the existing infrastructure identified for mass vaccination

of the population. Immunization clinics for influenza vaccine require less staff-to-client time, but there will be a need for tracking to ensure appropriate receipt of vaccine. Monitoring of vaccine adverse events associated with influenza vaccine shall be reported through the Vaccine Adverse Reporting System (VAERS).

VIII.4 The US Department of Health and Human Services has listed the following goals of vaccination in its *Pandemic Influenza Preparedness and Response Plan*:

1. Goal 1: Maintain the ability to provide quality health care, implement pandemic response activities and maintain vital community services.
2. Goal 2: Protect persons at highest risk for influenza mortality.
3. Goal 3: Decrease transmission of infection to those at highest risk for influenza mortality.
4. Goal 4: Maintain other important community services.
5. Goal 5: Protect the susceptible population at large.

VIII.5 These goals are the foundation for the pandemic planning issues associated with the identification of priority groups to receive vaccine. Priority groups include those essential personnel (e.g., healthcare workers, first responders, and public safety officers) that will maintain the capacity to implement pandemic response activities. Direct protection of high-risk persons for influenza and their family members, (high-risk groups defined by the Advisory Committee on Immunization Practices on an annual basis) should be considered as an effective strategy in decreasing the transmission of influenza and influenza-related morbidity and mortality. It is not known what additional prioritization may occur, however, state and local public health officials shall identify members of these priority groups in advance of a pandemic as part of the strategy goals to decrease health, social and economic impacts within LA communities. This strategy shall be flexible and responsive not only to vaccine supply, but also to the epidemiology of the pandemic.

VIII.6 The success of the pandemic influenza vaccination strategies will be determined in large part by the strength of state and local vaccination programs during the inter-pandemic period and be designed to decrease the health impacts of an influenza pandemic by taking into account susceptibility to infection and the risk that once infected, severe illness or death will occur.

VIII.7 Vaccination against seasonal influenza virus strains

VIII.7.1 Recent influenza vaccine supply problems and the policy of vaccinating high risk patients have become increasingly difficult and costly. Vaccination programs during an influenza pandemic

will present even greater challenges. Methods of vaccine delivery, administration, and inventory control depend on the vaccine supply and the epidemiological features of the illness. Close collaboration between public and private healthcare providers is essential to the success of a pandemic influenza vaccination program.

VIII.7.2 As a base for disaster planning associated with vaccine delivery issues, Louisiana intends to rely to a large extent on the strength of its current distribution system, which is based in the DHH/OPH Immunization Program. This infrastructure is currently used to efficiently distribute childhood vaccine. In 2004, an average of 150,000 doses of childhood vaccine was distributed each month. The program has established vaccine distribution systems through hospitals, clinics, nursing homes, health care facilities and private physicians' offices that can be adapted to assist the state in its pandemic vaccine distribution goals and objectives. Specifically, the current distribution system includes:

- A central Immunization Program site for management of a state distribution
- system with backup strategic sites available on an as-needed basis;
- Adequate coolers and back-up power for proper storage of vaccine;
- Adequate supplies for repackaging vaccine as necessary;
- Established protocols and lines of communication;
- An existing communication infrastructure, which includes phone and fax
- Accessibility for the community;
- An existing computer system for tracking inventory receipt and shipping;
- Secured and monitored location;
- Trained professional and support staff, who are capable of preparing shipments
- for over 100 plus different sites per day, with shipments averaging 15,000 doses per day; and
- Experience with providing rapid, accurate service with the ability to complete and ship orders within two to three days of receipt.

VIII.7.3 During normal inter-pandemic periods, routine vaccination activities will continue and as per CDC recommendations, LA DHH/OPH will strive to increase rates of vaccination for both influenza and pneumococcal vaccines to high risk target population groups. The DHH/OPH Immunization Program has annually

distributed over 150,000 doses of influenza vaccines to hospitals, clinics, and private physicians who participate in the Vaccines for Children Program (VFC) as well as in over 80+ local parish health units statewide where the vaccines are offered at little or no cost. In addition to this, over 7,000 doses of pneumococcal vaccine (PPV-23) was provided to high risk adults at the local parish health units.

VIII.8 Preparedness Planning for Vaccination against Pandemic Influenza Virus - The next pandemic poses a number of challenges for vaccine delivery for LA DHH-OPH, since distribution by the public sector during the pandemic will be greater than the amount distributed in non-pandemic years. With little time to prepare for a pandemic, it is likely that either no influenza vaccine or limited doses will be available for vaccinating Louisianans, which makes influenza antiviral distribution and delivery important in order to limit influenza morbidity and mortality. Both the public and private sector will be mobilized to administer whatever vaccine is available. The exact proportion of vaccine to be purchased and administered through the public versus the private sector is yet to be established. At the minimum, the public sector will take responsibility for vaccinating health care workers, other “local responders,” certain essential community servants, the poor, and the uninsured. The actual organization of the vaccination program, in both the public and private sectors, will have to be customized for each community and target group and will depend on the extent and availability of the infrastructure and resources. While vaccine may be unavailable or in short supply during the early stages of the pandemic, every state agency and organization should have contingency plans to provide continuity of essential services during periods of high absenteeism. Contingency plans should be in place to provide backup for any personnel whose absence would pose a threat to public safety or would significantly interfere with the ongoing response to the pandemic.

VIII.9 Vaccination of Priority Groups - Vaccine priority recommendations have been released by the ACIP and National Vaccine Advisory Committee (NVAC) with the identification of functions that should be preserved to maintain effective services and critical infrastructures. The identification of vaccine priority groups are based on the following critical assumptions: a) the risk of morbidity and mortality among different age groups; b) the current healthcare system to meet the demands during a pandemic; c) the community workforce and the impact related to absenteeism; d) the infrastructure of critical and essential community services necessary; and e) the production capacity and availability of vaccine. The rank order of high priority groups (see Table 1) who will receive influenza vaccine in a pandemic should be as follows: (1) “essential community workers” (e.g., medical care providers, public health workers); (2) persons traditionally considered to be at increased risk of severe influenza illness and mortality (e.g., persons \geq 65 years of age with high-risk conditions); (3) persons 6 months of age – 64 years with high risk conditions and pregnant women; (4) all other groups for whom

vaccination has been traditionally recommended; (5) public safety workers such as policemen, firemen, and emergency medical services and military personnel) and key government leaders; and (6) persons age 18 years or older who do not fall into any high priority group. This rank order can be reconsidered when a pandemic occurs and sufficient information is obtained on the epidemiologic and clinical features exhibited by the actual pandemic strain. *(Estimation of each priority group will need to be determined.)*

Table 1	Vaccine Priority Groups	Rationale
Phase 1	Essential community workers involved in direct patient care, other supportive services, vaccinators	These groups are a crucial component to the execution of the pandemic response plan; to manage/monitor response activities; to maintain the healthcare infrastructure to reduce morbidity/mortality
	Persons traditionally considered at increased risk of severe influenza ≥ 65 years of age	Risk group considered at increased risk for hospitalization and death (excludes nursing homes and immunocompromised persons not likely to be protected by vaccine)
	Persons 6 months – 64 years with 2 more high risk conditions and pregnant women	Pregnant women have been considered at high risk during past pandemics and annual influenza and will afford protection of the infant who cannot receive vaccine
	Household contacts of immunocompromised persons and children < 6 months of age	Vaccination of household contacts of immunocompromised persons and young infants will decrease of the risk exposure among those who cannot be protected by vaccination
Phase 2	Public safety workers	Includes critical infrastructure groups that have impact on maintaining health (emergency responders, essential public safety workers (e.g., firemen, police, 911 dispatchers, and mortuary services) and to maintain essential community services (e.g., transportation, utilities, telecommunications)
	Key government leaders	Critical for decision makers that manage and implement pandemic response planning
Phase 3	Healthy persons 65 years and older	Group is at increased risk but not as high as those with underlying conditions
	Healthy persons 2 – 64 years not included in any listed categories	Phase-in groups who are likely at lower morbidity/mortality risk

Figure 10: Vaccine Priority Groups

VIII.10 Vaccine Procurement and distribution

- VIII.10.1 Although the overarching goal will be to vaccinate the entire population, this will have to be accomplished in stages, because of initially limited supplies of vaccine. Assuming that the need will exceed vaccine availability, Louisiana will submit its order to the CDC for the maximum allocation of vaccine in proportion to the size of the population in the defined priority groups. The CDC will assume responsibility for ensuring that the manufacturer ships the vaccine directly to the DHH/OPH Immunization Program. However, if a mass vaccination plan is required, the program may be directed to use the Strategic National Stockpile (SNS) infrastructure for storage and transport of vaccines and supplies if necessary. The DHH/OPH Immunization Program would encourage private organizations to purchase vaccine and administer it in their community-based programs as necessary and will develop a communication plan for private sector vaccine use. However, immunization providers enrolled in the Vaccine-For-Children (VFC) program and parish health units statewide will receive vaccine shipments directly from the central Immunization Program office in New Orleans with the existing plans to focus on priority groups. Unused vaccine can be reallocated and redistributed promptly and efficiently to those providers who have not met their priority groups.
- VIII.10.2 If the influenza vaccine for a pandemic is available through CDC, it will be ordered through the Vaccine Management (VACMAN) software system. If the vaccine is delivered directly from the manufacturers without going through CDC, it will be recorded electronically into VACMAN from the manufacturers to the central office and processed through the State Immunization Information System (SIIS). The Central Immunization Site is the designated recipient of the vaccine shipment with an estimated capacity to store up to 4 million doses of vaccine at any one time. This amount is in addition to the other vaccines and biologicals normally stored in the facility. Temporary relocation of existing inventory would be considered if the need for capacity storage is greater than currently available.
- VIII.10.3 The DHH/OPH Immunization Program Director and staff will focus on distributing the influenza vaccine as quickly as possible to regional and local communities and will maintain vaccine inventory. To accomplish this objective, the program will use the existing infrastructure and contracts with contractual carriers to deliver the vaccine to secondary storage sites in each parish. If existing contracted commercial carriers are unable to provide the

full extent of needed delivery services, and other commercial carriers cannot be found to provide comprehensive and timely delivery services, as part of the Louisiana Comprehensive Emergency Management Plan, the State Health Officer will seek an executive order authorizing emergency delivery assistance via the governor's office. Under the *Louisiana Emergency Support Function (LAESF) 16: Law Enforcement and Security*, the State Police as the primary agency could provide security for all activities associated with the vaccine distribution process for the duration as needed by the Immunization Program.

- VIII.10.4 Once the vaccine becomes available and how it will be apportioned between the public and private sectors is known, the Louisiana Immunization Program will meet with the Executive Committee and private health care representatives to determine the needs of the State. The Committee will make recommendations as to whom vaccine should be targeted to within the private sector. With regards to the public sector, CDC will notify the Louisiana Immunization Program as to how much vaccine will be available for Louisiana through a federal contract. Vaccine may also be available through contracts negotiated directly between the Program and vaccine manufacturers. The Executive Committee will determine the proportion of vaccine needed for essential state personnel (based on the Priority Group list) and the vaccine availability for regional and local distribution. The Immunization Program will then notify each city and parish.
- VIII.10.5 The Immunization Program Director in collaboration with the State Health Officer will ensure policies and procedures for specific standing orders. Regional Medical Directors will implement policies and procedures for vaccination of priority groups, dosage and site of administration, contraindication to vaccination, precautions to vaccinations and response to anaphylaxis. The Regional Medical Directors will also ensure fully operational clinic functions including adequate staffing, vaccine storage and management, and implementation of appropriate infection control measures and safety.
- VIII.10.6 Funds may be needed to quickly pay for vaccines and additional personnel, courier services, and /or space for storage and distribution of vaccines on an emergency basis. At the State level, a Declaration of a Public Health Emergency may be warranted by the DHH State Health Officer. In this case, an Executive Order request via the LA State Health Officer and/or Secretary of Health to the Governor may be necessary for quick action by all state agencies, including the Administration and Finance to release

funds necessary to respond to the pandemic. In addition, emergency appropriations may be needed for additional purchase of vaccine and clinic supplies, overtime for weekend work, and additional travel if necessary.

VIII.11 Second dose vaccination. Louisiana has approximately 4.5 million residents in the year 2005. Faced with a novel influenza virus, estimates suggest that Louisiana may need over 8 million doses of vaccine (based on 2-dose schedule), with adequate lead-time, to fully immunize its population during an influenza pandemic. However, due to anticipated shortages and delays in acquiring vaccine, the actual distribution will, in most likelihood, be substantially less than the amount needed for full population immunization with vaccine distribution to occur in several stages.

VIII.11.1 In addition, the need for additional resources such as national response teams that may be utilized, consideration for additional vaccine doses and medical supplies to protect these persons should be inclusive of the total estimate needed for coverage within the state.

VIII.11.2 If two doses are required to achieve immunity, persons who have been initially vaccinated will be notified to return for the second dose. High rates of compliance for the second dose (if needed) can be achieved through the current operational immunization registry. The Louisiana Immunization Network for Kids Statewide (LINKS), a centralized immunization registry, is the primary tool to be used to support planning, implementation, and evaluation activities throughout the pandemic. The LINKS system is a statewide, population-based registry that was deployed in February 2000. In early 2003, two additional modules were implemented to support the smallpox campaign, the First Responder Module and the Mass Immunization Module (web-based and stand alone). A key issue of the LINKS system is the ability of the state immunization registry to assist in overall public health preparedness activities and be a continually evolving system. Development and refinement of the Mass Immunization Module will be conducted this upcoming year through the current contractual computer technology services, Scientific Technologies Corporation (STC) to capture essential data elements pertaining to pandemic vaccine recipients and the reporting of adverse events. *(Deadline for modular development targeted for end of Year 2006)* The data collected through LINKS will be used to define the target cohort, identify immunized persons, and generate reminder/recall notices to notify persons that they are due for second dose vaccinations. LINKS will be used for collecting immunization information at the time of service for all patients presenting during

the mass vaccine campaign. The reminder/recall notice process has already been established in collaboration with the U. S. Postal Services to generate post cards in mass as a reminder for second dose vaccination. A barcode which represents the patient's State Immunization Information System (SIIS) ID is added to the reminder/recall postcard. This allows clinic staff to search efficiently for patients presenting with postcards and reduces data entry time. To promote use of the barcodes to search for patients, clinics are supplied with barcode scanners. These scanners simplify patient searches by allowing clinic staff to scan the postcard to retrieve the patient record rather than entering in first name, last name, and/or birth date. Finally, vaccine coverage level assessments can be determined from data stored in LINKS.

VIII.11.3 (The Immunization Program in collaboration with DHH communication staff will assist all health care providers and vaccine recipients by notifying all those in the need of re-vaccinations as recommended by the ACIP to receive the second influenza vaccine dose.)

VIII.12 Contingency planning for Investigational New Drug Use. Provisions will be necessary in the event of an emergency distribution of IND unlicensed vaccines (investigational new drug). A contingency plan shall be developed with considerations to provisions necessary such as strict inventory control, record-keeping and obtaining a signed consent form.

VIII.13 Vaccine Monitoring and Data Collection - The LINKS registry has the capacity to track immunization coverage of pandemic influenza vaccines according to doses administered, by date, age groups and locale in addition to second dose requirements. Core immunization registry functions such as reminder notices, data collection, and assessment/ reporting functions can be utilized, along with other tools specific to mass vaccination clinics. In preparation for a pandemic event, modifications can be made to the LINKS application to streamline clinic operations. Contingency plans include assisting clinic participants in preparing for an unscheduled outage of the LINKS system. This contingency plan has been implemented during the mass immunization campaign during Hurricane Katrina 2005 in the use of a stand-alone version of LINKS. Clinics can be provided software (with the assistance of STC Technologies) and documentation for installation, as well as a CD that contains a snapshot view of the LINKS registry data. A secondary contingency plan will involve having clinics return to paper processes used before the implementation of LINKS in case the electronic registry was unavailable. Administered vaccinations will then be entered into LINKS when outages are over.

VIII.14 Vaccine effectiveness. To monitor vaccine effectiveness, this will involve collaboration with the Infectious Disease Epidemiology Section in the

surveillance of pandemic cases in conjunction with enhancement of the influenza sentinel surveillance system to establish rates of influenza-related illness, hospitalization and/or deaths among vaccinated and unvaccinated persons.

VIII.15 Vaccine safety. Adverse reactions to influenza vaccine will be monitored by the Immunization Program through the Vaccine Adverse Events Reporting system. The Louisiana Immunization Network for Kids Statewide (LINKS) registry electronic database will record the necessary demographic and vaccine information with the capability of tracking and recalling individuals to receive all necessary doses as well as tracking and monitoring for adverse vaccine reactions. All adverse event forms (VAERS) should be submitted to the LA Immunization Program at 1450 L & A Road, Metairie, LA 70001. The Immunization Program Director will monitor and assess vaccine adverse events/trends and the timeliness of reporting with follow-up reporting to appropriate federal agencies. Reporting of adverse events associated with IND or EUA vaccines will follow the process of adverse events reporting unless it is determined by IRB review to modify the reporting process through other mechanisms.

VIII.16 Public Health Communication - Information regarding the strategic use of pandemic vaccine – including rationale for priority groups, phasing of vaccination and locales of vaccination sites will be in coordination with the DHH/Bureau of Media and Communications as indicated in the channels of the Louisiana State Office of Homeland Security and Emergency Preparedness Emergency Plan.

VIII.17 Coordination with Bordering Jurisdictions - This section to be determined by the Command Incident Center – however, consideration of vaccine priority groups may be reserved for Louisiana residents while coordination of vaccine distribution plans should be collaborated with the neighboring states of Louisiana – Mississippi, Texas and Arkansas by CIC

VIII.18 Training - Mass immunization drills will be conducted annually to evaluate the process of distribution, coordination of clinics, communications and analysis of all other post-event activities. Lessons learned will be evaluated and when necessary adopted into practice.

VIII.19 Recommendations for the Pandemic Period

VIII.19.1 Before vaccine is available. Upon the identification of an event or imminent threat, the Immunization Program will meet with the key members of the Incident Command Center to review the state's vaccine distribution plan and modify the plan according to updated interim recommendations on priority groups, vaccine availability and staffing estimates for mass vaccination. Information pertaining to the vaccine plan and expected availability, distribution and use of pandemic vaccines for both public and private providers will be coordinated with the Communications

Office for dissemination. The priority list is subject to change - potentially on short notice - depending on the epidemiological and clinical features exhibited by the actual pandemic strain. Plans based on these pandemic draft recommendations should contain a great deal of flexibility in order to be responsive both to the final recommendations and changing conditions during the pandemic.

- VIII.19.2 When vaccine becomes available. The DHH/OPH Immunization Program will abide by the policies and plans as established in this pandemic plan for the distribution, issuance of required doses, monitoring inventory, investigating adverse events and continued communication activities with the public and providers with regards to the pandemic vaccine. Once the pandemic has ended, the Immunization Program will assess and evaluate the strengths and limitations of all response activities involving vaccine distribution, tracking, delivery, adverse events monitoring and communications in tandem with the overall state response to the pandemic.

IX. Antiviral Drug Distribution and Use

- IX.1 Louisiana intends to purchase its full allotment of antivirals in two phases. Half of the states allotment (235,902 courses) will be purchased on receipt of a contract and the other half will be a year from August 1, 2006. Louisiana's initial course will consist of 80 percent Tamiflu (188,702 courses) and 20 percent Relenza (47,180 courses). The Department of Health Human Services and the CDC Region VI project officer were made aware of Louisiana's plans in a letter dated July 28, 2006. Louisiana also designated the Deputy Secretary for the Department of Health and Hospitals as its Entity Authorizing Official. The DHH/OPH Pharmacy Director is the state's designated ordering officer. The program manager for pandemic influenza in the DHH/OPH will serve as the backup ordering officer. Louisiana's shipment will consist of 88 blister cards per case with ten capsules per blister card. The drug regimen is one capsule twice daily for five days. One blister card provides medication for one person. Forty-four cases of medication are on the standard 40" x 48" pallet. This will provide 3,872 courses of medication per pallet.
- IX.2 The antivirals will be received, transported and secured following the state's plan for the Strategic National Stockpile. There are plans in place for the Louisiana State Police, Louisiana National Guard and local law enforcement to provide security for this valuable state resource. The State Pharmacy will assure that the medications are stored correctly and dispensed following established national guidelines.
- IX.3 It is initially planned that Louisiana's portion of antivirals will be distributed to hospitals and health care facilities for the treatment of individuals ill with avian

influenza. The DHH/OPH/Infectious Disease Epidemiology will consult with local health care providers to identify persons who meet the national criteria to receive these antiviral medications.

- IX.4 The antivirals will be sent from the secure storage site under the direction of the DHH/OPH/Pharmacy to an individual pharmacy to dispense the antivirals under specific guidelines. Physicians and nurses will administer the correct dosage in the hospital or health care setting.
- IX.5 As additional antiviral medication becomes available essential personnel, like health care providers and community responders like police, fire, water safety and emergency medical service personnel could be offered antiviral medications. As part of routine influenza preparedness special groups of persons considered at high risk for disease, like the very young, elderly and immune compromised could be given priority for limited resources like antiviral drugs.

X. Strategic National Stockpile

- X.1 An act of terrorism (or large scale natural disaster) targeting the U.S. civilian population will require rapid access to large quantities of pharmaceuticals and medical supplies. Such quantities may not be readily available unless special stockpiles are created. No one can anticipate exactly where a terrorist will strike and few state or local governments have the resources to create sufficient stockpiles on their own. Therefore, a national stockpile has been created as a resource for response.
- X.2 The Strategic National Stockpile (SNS) is organized for flexible response. The first line of support lies within immediate response 12-hour push packages. These are caches of pharmaceuticals, antidotes, and medical supplies designed to provide rapid delivery of a broad spectrum of assets for an ill defined threat in the early hours of an event. These push packages are positioned in strategically located, secure warehouses ready for immediate deployment to a designated site within 12 hours of the federal decision to deploy the SNS program.
- X.3 If an incident requires additional pharmaceuticals and/or medical supplies, follow-up on vendor managed inventory (VMI) supplies will be shipped to arrive within 24 or 36 hours. If the agent is well defined, VMI can be tailored to provide pharmaceuticals, supplies and/or products specific to the suspected or confirmed agent(s). In this case, the VMI could act as the first option for immediate response from the SNS Program.
- X.4 The SNS Plan is designed to implement prophylaxis or vaccination clinics throughout the State of Louisiana with a combined capability of treating the entire population in 48 hours.

XI. Community Disease Control and Prevention

XI.1 Louisiana DHH Bureau of Legal Services - Members of the legal preparedness team include representatives from DHH General Counsel, DHH Attorney Supervisor, and Office of Public Health Attorney Supervisor.

XI.1.1 Review of outside literature. There will be a comprehensive review of existing authoritative guidelines and statutes/regulations implemented by other jurisdictions, including, but not limited to the following:

- i. HHS Pandemic Influenza Plan (www.pandemicflu.gov) – including legal preparedness guidelines and checklists
- ii. Model State Emergency Health Powers Act (2001)
- iii. NY Dept. of Health’s Pandemic Influenza Plan (2006)
- iv. TX Dept. of Health’s Communicable Disease Control Measures in Texas - a Guide for Health Authorities in Public Health Emergencies (2004)

XI.1.2 The DHH/Bureau of Legal Services staff have briefly reviewed the listed plans from other states, and they seem to provide a well conceived approach to the necessary legal implications of a possible pandemic influenza outbreak.

XI.1.3 Review of Existing Louisiana Statutes and Regulations - Louisiana authority for the isolation and/or quarantine of individuals exposed to infectious diseases is found in the Sanitary code (title 51 of the LAC). We will review existing provisions of the code and compare them with the above-listed sources. A “gap analysis” will be performed to determine what additions to our code are desired or needed, including the protocols outline on the HHS website. We will draft (or review existing) motions, orders, templates, and other documents/pleadings needed to implement quarantine, isolation, exclusion, or travel restrictions.

XI.1.4 Other Actions and Recommendations - After completion of the “gap analysis” referred to above, we will consider proposing revisions to the Sanitary Code and/or suggesting that DHH propose revisions to the existing Louisiana Statutes.

XII. Management of Travel-related Risk of Disease Transmission

XII.1 The 2003 pandemic of severe acute respiratory syndrome (SARS) demonstrated how quickly human respiratory viruses can spread, especially in a world of modern air travel. Disease spread will likely be even faster during an influenza pandemic because a typical influenza virus has a shorter average incubation period (typically two days vs. seven to 10 days for SARS-associated coronavirus [SARS-CoV]) and is more efficiently transmitted from person to person.

- XII.2 If an influenza pandemic begins outside the United States, public health authorities might screen inbound travelers from affected areas to decrease disease importation into the United States. If a pandemic begins in or spreads to the United States, health authorities might screen outbound passengers to decrease exportation of disease. Early in a pandemic, the Louisiana Office of Public Health (OPH) will also implement domestic travel-related measures to slow disease spread within the state.
- XII.3 Because some persons infected with influenza will still be in the incubation period, be shedding virus asymptotically, or have mild symptoms, it will not be possible to identify and isolate all arriving infected or ill passengers and quarantine their fellow passengers. Moreover, if an ill passenger is identified after leaving the airport, it might not be possible to identify all travel contacts within the incubation period for influenza. Nevertheless—depending on the situation—these activities might slow spread early in a pandemic, allowing additional time for implementation of other response measures such as vaccination.
- XII.4 Voluntary limitations on travel during a pandemic alert and pandemic, as persons decide to limit their own personal risk by canceling nonessential trips, will also decrease the amount of disease spread. Limiting or canceling travel of U.S. residents and others from affected countries will depend on the properties of the pandemic virus that emerges, and will be informed by the facts on the ground at the time of emergence.

Recommendations for the Interpandemic and Pandemic Alert Periods

- XII.4 Preparedness for implementation of travel-related containment measures
- XII.4.1 If a pandemic begins outside the United States, early application of travel-related control measures (i.e., identification and isolation of ill travelers, quarantine of close contacts) might slow the introduction of the virus into the United States, allowing more time for healthcare preparedness efforts. The effectiveness of these measures might be limited because asymptomatic travelers can transmit disease, travelers in the incubation phase might not become symptomatic until after arrival at their destinations, and it might not be possible to trace contacts within the incubation period for influenza. Results of mathematical models suggest that even with international flights, if persons are asymptomatic but incubating influenza when they board, they may remain asymptomatic when they arrive and therefore may not be detected by either exit or entry screening. Nevertheless, the ability to detect some cases early in the pandemic may slow disease spread even for a short time. Community partners involved are:
- Quarantine officers
 - First responders (firefighters, police officers)

- Local members of the legal community
- Emergency medical services and other emergency responders
- Hospital personnel
- Representatives of airports, seaports, and the transportation industry, including unions
- Political leaders
- American Red Cross and other humanitarian organizations
- Business services

XII.4.2 DHH/OPH will work with quarantine officers to develop memoranda of agreement with hospitals near ports of entry that are equipped to isolate, evaluate, and manage suspected influenza patients and with emergency medical services that can help perform on-site assessments of ill passengers and transport them to hospitals for evaluation.

XII.5 Protocols for managing ill travelers at ports of entry - In collaboration with law enforcement authorities and other partners, DHH/OPH and quarantine officers have developed a protocol for managing ill arriving passengers identified by airplane or cruise ship personnel. The protocol includes provisions for:

- Meeting flights with a reported ill passenger
- Reporting potential cases to CDC
- Providing a medical assessment of the ill traveler and referral for evaluation and care
- Separating the ill traveler from other passengers during the initial medical assessment
- Transporting the ill traveler to a designated healthcare facility
- Identifying other ill passengers and separating them from passengers who are not sick
- Transporting and quarantining contacts, if necessary
- Enforcing isolation and quarantine, if necessary, when ill travelers or their contacts are uncooperative

XII.6 Quarantine preparedness at ports of entry - DHH/OPH will identify quarantine facilities for housing passengers, crew, and emergency workers who may have been exposed to an ill traveler. These facilities should be equipped for:

- Temporary quarantine (a few days), until the results of diagnostic tests become available

- Longer-term quarantine (up to 10 days) if a diagnosis of pandemic influenza is confirmed
- DHH/OPH and community partners should plan for the provision of goods and services to persons in quarantine.

XII.7 Legal preparedness - The state of Louisiana is primarily responsible for restricting travel within its borders while the federal government may take measures to prevent the interstate spread of communicable diseases.

Because jurisdictions and authorities at airports and other ports of entry overlap, DHH/OPH and federal health authorities have establish protocols and outline roles and responsibilities in advance of a public health emergency.

XII.7.1 Health information for travelers – The Centers for Disease Control and Prevention Travelers’ Health website <http://www.cdc.gov/travel/> will provide up-to-date travel notices for international travelers to countries affected by novel influenza viruses during the Pandemic Alert Period and Pandemic Period. These notices are issued depending on the scope, risk for travelers, and recommended preventive measures. Four types of travel notices can be issued: In the News, Outbreak Notices, Travel Health Precautions, and Travel Health Warnings. Additional Travel Health Precautions or Warnings may be issued to inbound and outbound travelers during the Pandemic Alert Period if avian influenza spreads internationally and causes additional cases of human influenza.

XII.8 Evaluation of travel-related cases of infection with novel strains of influenza

XII.8.1 During the Pandemic Alert Period, travel-related cases of infection might be detected after entry into the United States or reported during transit by airline or cruise ship personnel before arrival of an ill passenger.

XII.8.2 Guidance on the clinical management of suspected cases of novel influenza is provided in another section of this plan.

XII.9 Managing ill passengers

XII.9.1 DHH/OPH will follow the management plan for arriving ill passengers who meet the clinical and epidemiologic criteria for infection with a novel strain of influenza. Additional or updated case definitions for infection with novel strains of influenza will be issued, as needed, if the level of heightened surveillance increases from a situation of little immediate pandemic risk (corresponding to WHO Pandemic Alert Phase 3), to one in which pandemic risk is moderate or substantial (corresponding to WHO Pandemic Alert Phases 4 or 5).

XII.9.2 If an ill passenger with a suspected case of novel influenza is reported aboard an arriving airplane or cruise ship, a quarantine officer should do the following:

- XII.9.2.1 All partners should be notified, including the nearest Quarantine station, state and local authorities, and the CDC.
- XII.9.2.2 Request information on the ill passenger's symptoms and travel and exposure history to make an initial assessment if the illness meets the current clinical and epidemiologic criteria for avian influenza A (H5N1) or is suspicious for a novel influenza strain.
- XII.9.2.3 Determine if a state or local public health worker and/or quarantine officer should meet the airplane or cruise ship to further evaluate the ill traveler.
- XII.9.2.4 Provide the crew with guidance on infection control procedures, if needed (e.g., separate the ill passenger as much as possible from other passengers; provide the ill passenger with a mask or tissues to cover coughs and sneezes).

XII.9.3 If a state or local public health worker and/or quarantine officer decides to meet the airplane or cruise ship and perform an initial medical evaluation of the ill traveler, the passengers and crew should be informed of the situation and should not be allowed to disembark until the evaluation is complete.

XII.9.4 If public health officials determine that the ill passenger meets the clinical and epidemiologic criteria for infection with a novel influenza strain, the patient should be sent by ambulance to a hospital, using appropriate infection control procedures for transit and patient isolation.¹

XII.10 Managing travel contacts

XII.10.1 DHH/OPH will decide how to manage an ill person's travel contacts on a case-by-case basis, taking into consideration the following factors:

- XII.10.1.1 Likelihood that the suspected case is due to a novel influenza strain (based on symptoms and travel history, if laboratory results are not available)

- XII.10.1.2 Likelihood that the causative virus is transmitted from person to person with a moderate or high efficiency (as in later phases of the Pandemic Alert Period)
- XII.10.1.3 Feasibility of tracing and monitoring travel contacts, as well as the patient's family members, workmates, schoolmates, and healthcare providers
- XII.10.1.4 Management of contacts might include:
- Passive or active monitoring without activity restrictions
 - Quarantine at home or in a designated facility, and/or
 - Antiviral prophylaxis or treatment.
- XII.10.2 For retrospectively identified cases, if passengers and crew members cannot be traced within 48-72 hours of the presumed exposure, DHH/OPH, in consultation with CDC, might consider other options (e.g., issue a public notice through the news media).
- XII.10.3 During the Pandemic Alert Period, especially during the earlier phases, DHH/OPH will quarantine travel contacts (i.e., passengers, crew, response workers) only when there is a high probability that the ill passenger is infected with a novel influenza strain that is transmitted between people.
- XII.10.4 If a decision is made to initiate quarantine, persons who cannot be quarantined at home should be housed in a pre-designated temporary care facility until the diagnosis of the ill passenger is confirmed or disproved.
- XII.10.5 Each quarantined person should receive a preliminary medical assessment and should be interviewed to ascertain their travel and exposure histories.
- XII.10.6 If the diagnosis of a novel strain of influenza is confirmed, quarantined persons should be transferred as soon as possible to a pre-designated longer-term quarantine facility and should remain there for the maximum length of the incubation period for influenza. Each quarantined person may receive antiviral medication and should be monitored twice a day for fever and other signs of influenza. Medical follow-up and travel assistance should be provided to all quarantined persons when the quarantine period is over.

XII.11 Preventing the importation of infected birds and animals

- XII.11.1 DHH/OPH will continue to assist federal agencies with responsibility for preventing the shipment of infected birds and animals into the United States. Federal agencies with responsibility for inspecting imported animals, implementing veterinary quarantine orders, and enforcing U.S. Department of Agriculture (USDA) trade bans and HHS import bans include the Animal and Plant Health Inspection Service (APHIS), USDA; HHS/CDC; Bureau of Customs and Border Protection, Department of Homeland Security; and U.S. Fish and Wildlife Service, Department of the Interior.
- XII.11.2 USDA regulates the importation of all avian species (poultry, pet birds, birds exhibited at zoos, ratites) into the United States (9 CFR, Part 93). In general, birds submitted for entry into the United States must be quarantined in USDA-approved facilities. During quarantine, avian influenza virus isolation is attempted on samples collected from all dead birds and some live birds. These precautions are taken to prevent the introduction of exotic avian diseases, including avian influenza, into the United States. USDA import procedures for avian species are provided at <http://www.aphis.usda.gov/vs/ncie/importing.html>.
- XII.11.3 Under section 316 of the PHS Act (42 USC 264) the HHS Secretary may make and enforce regulations necessary to prevent the introduction, transmission, and spread of communicable disease from foreign countries into the U.S. and from one state or possession into any other state or possession. CDC has implemented this statute through regulations and those that authorize CDC's order banning birds and bird products that might carry avian influenza A (H5N1) can be found at 42 CFR 71.32(b). A current listing of CDC's orders banning the importation of birds and bird products that might carry avian influenza A (H5N1) can be found at <http://www.cdc.gov/flu/avian/outbreaks/embargo.htm>.

XII.12 Recommendations for the Pandemic Period

- XII.12.1 Over the course of an influenza pandemic, DHH/OPH will consider a range of travel-related control measures to decrease the spread of disease into the state or within the state. The following factors will be considered in recommending measures
- XII.12.2.1 The relative magnitude, duration, and stage of indigenous transmission versus the risk associated

with further introduced cases. When pandemic disease is widespread in the U.S., the additional contribution of introduced cases to the magnitude or spread of the pandemic will be minimal depending on the state of the epidemic in the specific location of introduction.

XII.12.2.2 The value of compulsory restrictions in a setting of voluntary changes in travel patterns. Voluntary changes in travel will occur during a pandemic as persons choose to cancel nonessential travel to decrease their potential exposure and risk of acquiring influenza infection. In this context, the added value of compulsory restrictions should be considered relative to the societal disruptions that limitations on movement would cause.

XII.12.2.3 Because travel-related measures implemented by one jurisdiction will inevitably affect others, communication, collaboration, and especially coordination before any measures are implemented is crucial.

XII.13 Travel-related containment measures

XII.13.1 Travel into the United States - Early during an influenza pandemic that begins outside the United States, DHH/OPH will heighten disease surveillance at Louisiana international airports and seaports and maintain close communication. Travel-related disease control measures will include management of ill travelers arriving at ports of entry and provision of travel health alert notices to incoming travelers.

XII.13.2 Managing arriving ill passengers - Identification and management of incoming ill travelers may delay and decrease the introduction of novel influenza strains into the United States during the Pandemic Alert Period. These efforts will continue during the early stages of the Pandemic Period, especially if a pandemic strain emerges in another country but has not yet entered the United States. Once the pandemic has spread outside and within the United States, screening for arriving ill passengers will become less useful and feasible. Although exit-screening of travelers from affected areas (“source control”) is likely to be a more effective disease control measure, its effectiveness too will be limited. To manage arriving ill passengers, DHH/OPH will do the following:

- XII.13.2.1 If a suspected case of pandemic influenza is reported aboard an arriving airplane or cruise ship during the early stages of a pandemic, obtain preliminary information about the ill passenger, and advise the captain and crew on patient isolation and infection control.
- XII.13.2.2 If the likelihood of pandemic influenza infection appears high, DHH/OPH will take these actions:
- Notify the airport to mobilize its first responders, and arrange for patient transport and preparation of quarantine facilities.
 - Meet the airplane or cruise ship, perform a medical evaluation of the ill traveler, and assess the risk to public health.
 - Inform the passengers and crew of the situation, and do not allow them to disembark until the evaluation is complete.
- XII.13.3 Travel health precautions and warnings - As the pandemic spreads from country to country, DHH/OPH will disseminate CDC country-specific travel notices and link DHH/OPH website to the CDC Travelers' Health website <http://www.cdc.gov/travel/>. Advisories might include
- i. Travel Health Precautions that describe steps that can be taken to reduce the risk of infection (e.g., avoiding travel to high-risk settings and communities where transmission is occurring)
 - ii. Travel Health Warnings that recommend postponement of nonessential travel
- XII.13.4 Travel-related measures at early stages of a pandemic - When there is limited transmission in other countries and potential for importation of cases into the United States, DHH/OPH will consider the following actions:
- XII.13.4.1 Initiate enhanced disease surveillance at ports of entry.
- XII.13.4.2 Provide guidance on infection control procedures that can be implemented, if needed, on airplanes or ships (e.g., separate the ill passenger from other

passengers; provide the ill passenger with a mask or tissues to prevent viral spread via coughing).

XII.13.4.3 Isolate arriving ill passengers, and quarantine their contacts as necessary.

XII.13.4.4 Collect information on all arriving passengers if notification is warranted (e.g., for antiviral administration, vaccination, or health monitoring).

XII.14 Travel-related measures at later stages of a pandemic

XII.14.1 If the situation worsens overseas and there is extensive and sustained transmission in other countries, DHH/OPH will consider these actions:

XII.14.1.1 Distribute travel health alert notices to passengers arriving from affected countries (i.e., countries for which health warnings have been issued).

XII.14.1.2 Post travel health alert notices in airports (e.g., on posters).

XII.14.1.3 Arrange with airline industry partners to show videos or public announcements about pandemic influenza on airplanes or cruise ships arriving from affected countries.

XII.14.1.4 Recommend canceling or limiting nonessential travel to affected countries.

XII.14.1.5 Collect information on all arriving passengers if notification is warranted (e.g., for antiviral administration, vaccination, or health monitoring).

XII.15 Decisions regarding the implementation of these actions may depend on how widely the pandemic disease has spread within the U.S.

XII.16 Other potential control measures might include increasing disease surveillance among passengers arriving from affected countries by visually inspecting travelers as they disembark, screening travelers for fever or other influenza symptoms, or administering questionnaires on possible exposures to influenza (e.g., contacts with influenza patients or visits to high-risk areas). Experience during the 2003 SARS outbreak (Appendix 1) suggests that implementation of these measures—which are highly labor-intensive and of unproven benefit—would be especially burdensome during an influenza pandemic. However, it is

possible that the transmissibility of a unique pandemic strain may differ from that of seasonal influenza strains or SARS, warranting consideration of alternative measures.

- XII.17 Travel out of the United States - If the level of influenza transmission in the United States presents a high risk for exportation of disease, DHH/OPH on the recommendations of CDC will consider the following actions:
- XII.17.1 Distribute travel health warnings to outbound passengers who live in or have visited affected parts of the United States.
 - XII.17.2 Recommend the cancellation of nonessential travel to other countries from ports of entry in affected parts of the United States.
 - XII.17.3 Implement pre-departure screening (e.g., temperature screening or visual screening) of outbound travelers.
- XII.18 Travel within the United States - If the level of influenza transmission in a U.S. area is high and if most other areas have not yet been affected, DHH/OPH in consultation with CDC will decide to recommend limiting or canceling nonessential travel to that area or to implement increased disease surveillance measures. Other containment measures and travel restrictions to slow disease spread within the United States that might be considered include:
- XII.18.1 Distributing travel health alert notices on domestic flights
 - XII.18.2 Isolating ill arriving passengers on domestic flights and quarantining passengers and crew, following protocols developed for international flights (see S9-III.C)
 - XII.18.3 Closing mass transit systems (e.g., buses and subways; see Supplement 8)
 - XII.18.4 Closing interstate bus and train routes
- XII.19 The potential effectiveness of these measures and the feasibility of implementing them should be considered in decision-making.
- XII.10 De-escalation of travel-related control measures - Decisions to de-escalate control measures related to international travel will be made in consultation with CDC.
- XII.11 Outbound passengers - CDC will downgrade a Travel Health Warning for outbound U.S. passengers to a Travel Health Precaution for a given country or area when there is adequate and regularly updated reporting of surveillance data from the area, and limited or no recent instances of cases in the area.

XII.12 Inbound passengers

On arrival, inbound passengers from areas under a Travel Health Warning should be provided with travel health alert notices. Because it is often difficult to determine passengers' points of origin, it may be more practical to continue providing travel health alert notices until Travel Health Precautions have been lifted for all areas. CDC will remove a Travel Health Precaution when there is adequate and regularly updated reporting of surveillance data from the area and limited or no recent instances of cases exported from the area.

XII: Travel-related containment measures
Appendix 1. Travel-Related Definitions

Travel Notices: Different types of notices for international travelers. During the 2003 SARS outbreak, CDC issued two types of travel notifications about disease occurrences in specific geographic areas. A travel alert, a lower-level notice, provided information on the outbreak and informed travelers about how to reduce their risk of acquiring infection. When the health risk for travelers was thought to be high, CDC issued a travel advisory recommending against nonessential travel to the area. Travel advisories were intended to reduce the number of travelers to high-risk areas and the risk for spreading disease to other areas. The levels of notification have since been revised to include four types of travel notices: In the News, Outbreak Notice

Travel Health Precautions, and Travel Warnings: In the News: Notification by CDC of an occurrence of a disease of public health significance affecting a traveler or travel destination. The purpose is to provide information to travelers, Americans living abroad, and healthcare providers. "In the News" is issued when the risk for disease exposure is not increased beyond the usual baseline risk for that area, and only standard guidelines are recommended.

Outbreak Notice: Notification by CDC that an outbreak of a disease is occurring in a limited geographic area or setting. The purpose is to provide information to travelers, Americans living abroad, and healthcare providers about the status of the outbreak and to remind travelers about standard or enhanced travel recommendations for the area. Outbreak Notices are issued when the risk for disease exposure is increased but well defined and limited to specific settings.

Travel Health Precaution: Notification by CDC that a disease outbreak of significant scope is occurring in a large geographic area. The purpose is to provide information to travelers, Americans living abroad, and healthcare providers about the status of the outbreak (its magnitude, scope, and rapidity of spread), specific precautions to reduce the risk of infection, and what actions to take if they become ill. Travel Health Precautions are issued when the risk for the individual traveler is increased in defined settings or associated with specific risk factors (e.g., transmission in a healthcare or hospital setting). Travel Health Precautions do NOT recommend canceling travel to the area.

Travel Health Warning: Notification by CDC that a widespread outbreak of a disease of public health concern is expanding outside the area or populations that were initially affected. The purpose is to provide information to travelers, Americans living abroad, and healthcare providers about the status of the outbreak (its magnitude, scope, and rapidity of spread), specific precautions to reduce the risk of infection, and what actions to take if they become ill. Travel Health Warnings recommend canceling nonessential travel to the area because the risk for the traveler is considered high (i.e., there is evidence of transmission outside defined settings and/or inadequate containment). Additional preventive measures may be recommended, depending on the circumstances (e.g., travelers may be requested to monitor their health for a certain period after their return; arriving passengers may be screened at ports of entry). A Travel Health Warning may reduce the volume of traffic to an affected area, which in turn can reduce the risk of disease spread to previously unaffected sites.

XII: Travel-related containment measures

Appendix 1. Travel-Related Definitions

Travel Health Alert Notice: Notice with travel-related information and recommendations designed for inbound travelers.

Travel contact: A person on the same conveyance as the ill person. Close contact: A person who has cared for or lived with the ill person or had a high likelihood of direct contact with respiratory secretions and/or body fluids of the ill person. Examples of close contact with an ill person include kissing or hugging, sharing eating or drinking utensils, talking within 3 feet, and direct touching. Close contact does not include activities such as walking by a person or briefly sitting across a waiting room or office.

XIII. Communications

Recommendations for the Interpandemic and pandemic alert periods

XIII.1 Assessing communications capacity and needs – An extensive effort has been made to make an assessment of the current communications resources that exist within the agency and through the partnerships that have been made with other state and local agencies, as well as with community organizations.

Capacity

XIII.1.1 The Department of Health and Hospitals (DHH) Emergency Communications Plan was formally developed in 2002 after the events of 9/11 and the anthrax attacks that followed. The plan was developed to serve the purpose of an “all-hazard” plan that would address all crisis situations including natural or man-made disasters.

ACTION ITEM: Continue to update the DHH Emergency Communications Plan as needed, at minimum on a yearly basis.

XIII.1.2 Currently, there are limited state funding resources to prepare for or respond to a pandemic. However, through funding from the Department of Health and Human Services and the DHHS/Centers for Disease Control and Prevention there are adequate fiscal resources to prepare for and respond to a pandemic situation. Currently, there are four full-time staff in the DHH/Bureau of Media and Communications (DHH/BMAC) to plan for and respond to a pandemic situation. There are several members of the DHH staff that are available to serve as “back-up” communicators in times of emergency. A partnership has also been established with the Louisiana Public Health Institute to provide supplemental public information assistance in times of emergency.

ACTION ITEM: Formalize agreement with the Louisiana Public Health Institute to provide emergency public information assistance.

XIII.1.3 DHH currently has a number of channels available for information dissemination including the DHH/BMAC, Media Listserv, the Health Alert Network (HAN), the Communicator System, and a comprehensive database of community partners that routinely distribute information for DHH.

ACTION ITEM: Continue to perform regular tests of the media listserv, HAN and the Communicator. Also, continue to update and develop the database of community partners.

XIII.1.4 All state-level and key regional staff members have been received basic media training and risk communications training.

ACTION ITEM: Specialized training on the risk communications issues associated with a pandemic situation will be developed and made available to staff responsible for planning for and responding to a pandemic.

Needs

XIII.1.5 The DHH Emergency Communications Plan is updated on a yearly basis. The most recent update took place after the events of Hurricane Katrina. It will continue to be updated to respond the needs of the agency, as well as to ensure the interoperability with the State Emergency Operations Plan.

ACTION ITEM: Continue to update the DHH Emergency Communications Plan on an annual basis.

XIII.1.6 State and regional spokespersons have been identified within the DHH Emergency Communications Plan and have received risk communications training.

ACTION ITEM: Continue to test risk communications skills of spokespersons through drill and exercises, as well as through actual emergency events.

XIII.1.7 A public information shelf kit has been created and will be distributed to all key health officials on the state and regional level. All personnel will be trained on the use of the materials contained in the kit. The kit contains fact sheets, brochures, public service

announcements for television and radio, as well as information for public health workers to respond to a pandemic outbreak

ACTION ITEM: Schedule trainings with the regional administrators and medical directors to review the contents of the pandemic influenza shelf kits.

ACTION ITEM: Review materials on a regular basis to ensure that the most current information is utilized within the kits.

XIII.1.8 DHH has identified several groups for which communications challenges exist. They are primarily the foreign language groups that exist in Louisiana. Efforts have been made to reach these groups through the local churches and community groups.

ACTION ITEM: Continue efforts to work with the foreign language groups to disseminate public health messages, including pandemic flu.

XIII.1.9 Risk communications activities are evaluated on a continual basis through drill and exercises, as well as through actual events, such as Hurricanes Katrina and Rita.

XIII.2 Conducting collaborative planning – Planning for a pandemic flu outbreak is already underway. Much has been accomplished in the way of coordination with other state and local government agencies, as well as community and non-profit organizations. The state has begun the process of extending pandemic planning materials to the general public.

XIII.2.1 Planning is currently underway on the state level to provide for a system of “back-up” communicators within other state agencies that can be called upon in a crisis. Through lessons learned in Hurricane Katrina, an extensive network of communications professionals within Louisiana state government has been assembled that can be activated with a declaration of emergency from the Governor.

ACTION ITEM: Ensure that all back-up personnel are trained in emergency risk communications.

XIII.2.2 DHH is a member of the Governor’s Communications Council, a group which consists of communicators from all state government agencies. This provides a forum for the sharing of communications initiatives and training.

ACTION ITEM: Present pandemic flu planning materials to the Communications Council to begin coordinating preparations for all other state agencies and the citizens they serve.

- XIII.2.3 DHH has developed an extensive network of community partners as a means to disseminate information to the public. It includes many grassroots organizations, such as community groups and churches, as well as organizations such as the Louisiana Hospital Association and the Louisiana Nursing Home Association.

ACTION ITEM: Continue to employ the assistance of these groups for the dissemination of pandemic preparedness information.

- XIII.2.4 DHH has developed an excellent working relationship with the local media to disseminate health messages. DHH is regarded as the top authority for matters of public health in the state of Louisiana. This relationship has been fostered through the work of the state-level communications staff, and more importantly, through the work of the regional public health staff, to become the face of public health in their communities. DHH evaluates the effectiveness of its communications procedures on a daily basis through routine communications and news releases.

- XIII.2.5 DHH places a strong focus on drills and exercises. Exercises to test the response to a pandemic flu outbreak are currently being planned in each region.

ACTION ITEM: Ensure that communications staff from DHH and all partner agencies are included within exercise planning and activities.

- XIII.3 Developing and testing standard state and local procedures for disseminating information – DHH has developed and routinely tests its procedures for the dissemination of information. These procedures are tested through daily issuance of departmental news. Emergency procedures are routinely tested through drills and exercises, as well as real-time events, such as Hurricanes Katrina and Rita

- XIII.3.1 DHH has developed a streamlined approval process for emergency communications which consists of the Secretary of DHH/State Health Officer or his designee, the Director of the Bureau of Media and Communications and the subject matter expert at DHH/OPH. This has proven to be an effective manner to quickly release correct and consistent information in times of emergency. In addition, public information materials that are contained in the pandemic flu public information shelf kits have been pre-approved for immediate release in the event of a pandemic flu outbreak.

ACTION ITEM: Continue to evaluate approval process for the release of emergency information through drills and exercises, as well as during actual events, like hurricane response.

ACTION ITEM: Continue to update information contained in the pandemic flu public information shelf kit to ensure the most up-to-date information for pandemic flu response.

XIII.3.2 Through events such as the West Nile Virus outbreak of 2002 and Hurricanes Katrina and Rita, DHH has developed procedures to report numbers of human cases and deaths. DHH will utilize those same reporting procedures for a pandemic flu outbreak that have proven effective in past incidents.

XIII.3.3 DHH has created the website dhemergencynews.com. This site was developed to provide emergency health information to the public. The site has been utilized for flu vaccine shortages and hurricane response. It can be quickly updated with the latest information. All state-level communications staff has access to post information on this site and have all been trained in that process.

XIII.3.4 A section of the emergency website has been tailored to allow the public to send their questions to public health officials. These public requests are received by the public information officer and are forwarded to the appropriate subject matter expert for response.

ACTION ITEM: Routinely test this feature of the website to ensure proper receipt of information requests.

ACTION ITEM: Investigate the possibility of building a protected site to post pandemic response information, prior to a pandemic outbreak

XIII.3.5 In addition to the resources that federal hotlines, such as the CDC-INFO, provide, DHH has nine regional toll-free triage lines that were created for triaging hurricane evacuees for special needs shelters. These lines can be utilized to provide public information in a pandemic outbreak.

ACTION ITEM: Ensure that all regions are trained on all of the information that is contained in the pandemic flu public information shelf kits, to enable them to appropriately respond to inquiries from the public.

XIII.3.6 Planning is currently underway on the state level to provide for a system of “back-up” communicators within other state agencies that can be called upon in a crisis. Through lessons learned in Hurricane

Katrina, an extensive network of communications professionals within Louisiana state government has been assembled that can be activated with a declaration of emergency from the Governor. Additionally, when the Governor signs an emergency declaration, it will trigger the activation of the state Joint Information Center (JIC). The JIC allows for the rapid coordination of all affected agencies and provides the proper forum for regular press conferences.

ACTION ITEM: Ensure that all back-up personnel are trained in emergency risk communications.

XIII.4 Developing, testing and disseminating locally tailored Interpandemic messages and materials – A multi-phased approach is recommended to prepare the public for a pandemic outbreak. The information campaign will utilize several different mediums to ensure that the maximum percentage of the population can be reached.

XIII.4.1 Initially, DHH plans to reach out to statewide businesses, schools, daycare centers, churches etc. to encourage them to begin helping the population they serve to prepare for a pandemic outbreak. DHH will send the federal checklists that have been developed, with instructions for planning. Additionally, DHH will develop and promote a “pandemic planning” newsletter article to major businesses, non-profits and healthcare organizations throughout the state.

XIII.4.2 Simultaneously, DHH will begin development of a pandemic flu planning website that contains planning information and materials for pandemic flu. Content ideas are population-specific planning materials, materials that address the fact and fiction of pandemic flu, the efforts that state and local government are making to prepare. Note: website materials will be translated into Spanish and Vietnamese to accommodate the foreign language needs of the populations living in Louisiana.

XIII.4.3 Once launched, DHH will begin promotion of the website to the public through a follow-up mail out to the same institutions that were targeted in the initial mail-out. Simultaneously, DHH will begin a media campaign that utilizes television, radio, and print ads to promote the website.

XIII.4.4 Following the development and promotion of the website, DHH will partner with the Department of Education to launch a school-based pandemic preparedness program to teach students the importance of healthy behaviors, such as germ and infection control, healthy living, and immunizations. The program will be

designed to demystify the information they hear about pandemic flu and will teach them basic behaviors that will keep them healthy and will help to protect them from any pandemic outbreak.

XIII.5 Recommendations for pandemic period

- XIII.5.1 Activating emergency communications plans – The activation of the DHH emergency risk communications plan will coincide with the activation of the State of Louisiana Emergency Operations Plan and the DHH Emergency Operations Plan. The decision to activate information hotlines will be made in conjunction with the State Health Officer and DHH/OPH emergency response officials. The Governor’s Office will be kept apprised of any increase in media attention that would warrant the activation of a Joint Information Center.
- XIII.5.2 Refining and delivering messages – All prepared messages will be evaluated based on the situation that is at hand. Messages will be tailored to respond to the current situation and any changes in message will be approved by the DHH/Secretary and the State Health Officer or his designee, the director of the DHH/Bureau of Media and Communications and the subject matter experts at DHH/OPH. Routine media monitoring will be enhanced, so as to be alerted to myths and rumors that are reported. Any misinformation will be addressed using standard methods. Enhanced personal safety information will be issued to the public and joint messages with the DHH/Office of Mental Health will be issued to help the public cope with the current situation and attempt to reduce stigmatization toward specific populations.
- XIII.5.3 Providing timely and accurate information – in a crisis, it is imperative that vital health communications messages are delivered very quickly. It has been proven that timely messaging will help to mitigate public fear and anxiety in times of crisis. DHH employs the use of the same spokespersons, both in times of crisis and through regular communications. These spokespersons are recognized in their communities as medical experts and are the source from which the general public has come to rely upon for health information. In addition to the information that is disseminated through these spokespersons, DHH has also developed an emergency news website www.dhhemergencynews.com. This site was developed to provide emergency health information to the public. The site has been utilized for flu vaccine shortages and hurricane response. It can be quickly updated with the latest information. All state-level communications staff has access to post information on this site

and have all been trained in that process. In addition to the resources that federal hotlines, such as the CDC-INFO, provide, DHH has nine regional toll-free triage lines that were created for triaging hurricane evacuees for special needs shelters. These lines can be utilized to provide public information in a pandemic outbreak.

XIII.5.4 Providing coordinated communications leadership across jurisdictional tiers (e.g., local, state, regional and national) – Through DHH’s participation in the National Public Health Information Coalition (NPHIC), agency communications staff have direct access to the communications staff and resources that are offered by the CDC. NPHIC also has allowed DHH Communications staff to foster relationships with health communicators in neighboring states and from all states across the nation. DHH’s participation in the Governor’s Communications Council has allowed DHH to share health information with communicators from other state agencies and to plan for crises that require public information communications.

XIII.5.5 Promptly addressing rumors, misperceptions, stigmatization and unrealistic expectations about the capacity of public and private health providers – DHH has always worked to address rumors and misinformation through regular communications and in times of crisis. Lessons learned from past emergencies, has illustrated the difficulty in addressing rumors and misinformation when communications staff is stationed in one central location. Plans are being made to forward-deploy communications staff to affected areas that are receiving heightened media coverage to combat rumor control and to provide extra communications assistance to the regional staff in the affected areas. Upon activation of a joint information center, a press conference schedule is set that provides a routine schedule of updates from response agencies.

XIV. Psychosocial Considerations and Information Needs

XIV.1 Decrease the time needed to provide countermeasures and health guidance go those affected by threats to the public’s health.

XIV.1.1 Develop a continuity of operations plan for essential health department services, including contingency planning for increasing the public health workforce in response to absenteeism among health department staff and stakeholder groups that have key responsibilities under a community’s response plan.

- XIV.1.2 Ensure availability of psychosocial support services (including educational and training materials) for employees who participate in or provide support for the response to public health emergencies such as influenza pandemics.
- XIV.1.3 Develop workforce resilience programs and ensure readiness to deploy to maximize responders' performance and personal resilience during a public health emergency.
- XIV.1.4 Assure the development of public health messages has included the expertise of behavioral health experts (see Supplement 10)