PANDEMIC INFLUENZA PREPAREDNESS PLAN

PHILADELPHIA DEPARTMENT OF PUBLIC HEALTH
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The Pandemic Influenza Preparedness Plan is an Annex to the Philadelphia Public Health Emergency Response Plan, which supplements the City's overall Emergency Operations Plan. The Pandemic Influenza Plan identifies the cooperating City agencies involved in preparedness for pandemic flu and their respective response roles. The Pandemic Influenza Preparedness Plan also describes how the Philadelphia Department of Public Health (PDPH) will work with local partners, such as physicians, hospitals, and community agencies, to respond to an outbreak of disease due to a novel strain of influenza. Avian influenza (H5N1) is just one such novel strain.

The Philadelphia Pandemic Influenza Plan was developed using the November 2005 guidance provided by the U.S. government (www.pandemicflu.gov), specific information distributed by the U.S. Centers for Disease Control and Prevention (CDC), the World Health Organization (WHO), and *Science* (November 18, 2005). Other references are New England Journal of Medicine 2005;353:1374-85; New England Journal of Medicine 2005;353:1363-73, and information available at www.cdc.gov, www.who.int, www.usda.gov, the websites for the CDC, WHO, and the US Department of Agriculture, respectively.

The Philadelphia Plan follows an organizational template provided by United States Department of Health and Human Services and the Centers for Disease Control and Prevention, while inserting specific details relevant to our City. PDPH's guidance for pandemic influenza is organized into four main action areas: (1) early detection, laboratory confirmation, and epidemiologic analysis of cases; (2) assuring medical care, including provision of antiviral medications and vaccines, as might become available; (3) prevention of local disease transmission through community-based containment strategies; and (4) dissemination of timely accurate health information to the public and healthcare provider community.

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Introduction

Background Information on Influenza

Influenza is a viral disease of the respiratory tract that typically presents with fever, headache, sore throat, cough, and muscle aches. Three types of influenza are known: A, B, and C. Type A includes 16 subtypes, of which only H1, H2, and H3 have been associated with widespread epidemics. Influenza A subtypes are classified by the antigenic properties of their surface glycoproteins, hemagglutinin (H) and neuraminidase (N). Influenza A and B viruses frequently experience genetic mutations of the surface glycoproteins that result in the emergence of new subtypes of viruses. Influenza spreads via the air in crowded populations in enclosed spaces, and the virus may persist for hours in the air or on surfaces. The incubation period for influenza is usually 1 to 3 days. Once infected, adults can spread the disease for 3-5 days from clinical onset, with children being communicable for up to 7 days.

Individuals may be immune to many subtypes of influenza, either because they have been previously infected with the subtype or a related subtype, or because they have recently been immunized. Priming a person's immune response for certain surface antigens (e.g., through immunization) reduces the likelihood of infection as well as the severity of disease if infection occurs. However, depending on how much the virus has changed, individuals may have little or no immunity. Antibodies to one antigenic variant may not protect against a new variant of the same type or subtype. When a novel and highly contagious strain of the virus emerges, the resulting pandemic can bring with it the potential to cause serious illness, death, and severe social and economic disruption throughout the world.

Pandemic viruses emerge as a result of a process called "antigenic shift," which causes an abrupt or sudden, major change in influenza A viruses. These changes are caused by new combinations of the H and/or N proteins on the surface of the virus. Such changes result in a new influenza A virus subtype. The appearance of a new influenza A virus subtype is the first step toward a pandemic; however, to cause a pandemic, the new virus subtype also must have the capacity to spread easily from person to person. Once a new pandemic influenza virus emerges and spreads, it usually becomes established among people and moves around or "circulates" for many years as seasonal epidemics of influenza.

Influenza Pandemics

Three influenza pandemics occurred during the 1900s. The best-known pandemic, the "Spanish flu" of 1918-19, may have claimed the lives of more than 50 million people worldwide with about 500,000 US deaths. The 1957 and 1968 pandemics resulted in approximately 2 million and 1 million worldwide deaths, respectively. Mortality was reduced during the later pandemics by use of aggressive supportive care and administration of antibiotics to treat secondary bacterial infections.

Vaccines were available for the 1957 and 1968 pandemics, but arrived too late to have an effect.

Influenza viruses that have developed the ability to cause illness and to spread from human to human cause influenza pandemics. Influenza viruses evolve over time as they spread between humans, fowl, and pigs. The transmission of viruses between these species plays an important role in allowing for the exchange of genetic material or development of genetic mutations that can change the virus's virulence.

Influenza viruses are subtyped based on the presence of two surface glycoproteins, hemagglutinin and neuraminidase. Pandemics have been caused by viruses with hemagglutinin subtypes H1, H2, and H3. The current strain of avian influenza A (H5N1) is a highly pathogenic strain that has been circulating among wild birds and poultry in Asia, and was first recognized among humans in Hong Kong when 18 persons were infected and six died in 1997. This avian outbreak is the largest and most severe on record, and has spread rapidly in 2004 and 2005. Scientists currently debate whether the current H5N1 strain of the virus will mutate to a form that can cause a pandemic, but do agree that an influenza pandemic is eventually inevitable.

Influenza Pandemic Phases

The Philadelphia Department of Public Health (PDPH), in collaboration with key partners, has developed this Annex to the PDPH Public Health Emergency Response Plan to reduce pandemic-influenza related morbidity, mortality and social disruption in the City of Philadelphia. WHO has suggested that plans be classified into three periods:

- Interpandemic: No new influenza virus subtypes have been detected in humans;
- Pandemic Alert: Human infections occur with a new influenza virus subtype, but human-to-human spread is limited; and
- Pandemic: Sustained transmission in the general population.

PDPH addresses each of the three periods in this Plan.

Estimated Impact of Pandemic Influenza on Philadelphia: Morbidity, Mortality, and Economics

Estimates of the numbers of people who would require hospitalizations and deaths in Philadelphia during an influenza pandemic were obtained by utilizing *FluSurge*, a Centers for Disease Control (CDC) web-based software program located on line at: http://www.cdc.gov/flu/flusurge.htm. Broad age distribution counts for the city, estimates of the number of hospital beds, intensive care unit beds, and the number of ventilators in the city are applied in the software application to mathematically model an outbreak of influenza. A disease attack rate of 15% and a pandemic duration of 6 weeks, were assumptions used to derive modest estimates. Similarly, an attack rate of 35% and a pandemic duration of 12 weeks were used to derive more severe estimates.

Under modest assumptions (15% attack rate, 6 week duration), the city of Philadelphia could expect approximately 3,400 hospital admissions related to pandemic influenza, and about 750 additional deaths. If these patients averaged a four-day hospital admission, hospitals would have to provide about 13,600 additional patient-days during the course of the epidemic.

If severe assumptions are input into the FluSurge program (35% attack rate, 12 week duration), the city of Philadelphia could expect approximately 8,000 hospital admissions and approximately 1,750 deaths related to pandemic influenza. This burden would equate to 32,000 additional patient days in the hospital if the average influenza patient had a four-day admission

Businesses would be impacted not only by the number of ill persons, but also by the possible need to implement containment measures to limit the spread of the disease. Measures might include: physical workspace redesigns, planning for employees to work from home, employee health screening programs, enhanced disinfection and hygiene programs for employees, and, at an extreme, implementation of workplace closure for health-related “snowdays.”

Despite the estimated large numbers of ill and dead, our city would have to ensure continuity of its operations. Our city government would need to continue to function. The city must ensure that essential services are provided to citizens, such as heating, transportation, clean water, safe food, and others.

The economic impact of pandemic influenza on the city of Philadelphia could be substantial. Philadelphia might suffer from loss of business revenue, including loss of tourism. The health care system would face tremendous expenses. Our city could be greatly and negatively impacted by an influenza pandemic, as could all large cities in the United States,

Philadelphia Pandemic Influenza Planning and Coordination

Pandemic influenza planning should be a broad-based collaboration among key partners to ensure that plans are integrated with other emergency planning efforts. Since 2005, PDPH has met with individuals from a variety of city, state, and federal agencies, hospitals and academic health centers, utilities and business districts to compile this draft plan and it's supporting documents and annexes. Pandemic Influenza Coordination requires a range of disciplines. The participating entities are:

- Managing Director's Office
- Philadelphia Department of Public Health
- Office of Behavioral Health
- Office of Emergency Management
- Philadelphia Fire Department
- Philadelphia Police Department
- City Solicitor/Law Department
- Office of Emergency Shelter Services
- Representatives from Utilities
- Pennsylvania Department of Health, including Bureau of Laboratories
- Delaware Valley Healthcare Council
- Business Community representatives
- Community Health Centers
- Philadelphia International Airport representatives
- Centers for Disease Control and Prevention Division of Quarantine

A meeting of agencies to review Philadelphia's Pandemic Influenza Coordination will be convened at the direction of the Managing Director's Office for the purpose of discussing, revising, and updating the Pandemic Influenza Preparedness Plan. Multi-departmental exercises and training will be coordinated through the MDO.

Roles and Responsibilities: Public (Federal, State and Local) and Private Partners, Individuals and Families

Clear delineation of roles of responsibilities is key to ensuring a coordinated response. The roles and responsibilities of federal, state, and local agencies and offices during a public health emergency are clearly detailed in the PDPH Emergency Response Plan (Section III Pre-Event Activities, Federal, State, and Local Responsibilities.) For pandemic influenza preparedness, a summary of these responsibilities follows.

Federal Roles:

The federal government is responsible for nationwide coordination of the pandemic influenza response. The response by federal agencies is flexible and adapts as necessary as the outbreak evolves. Primary federal functions include supporting affected state and local health jurisdictions as requested or required according to the policies and procedures detailed in the National Response Plan. Specific areas of responsibility include the following:

- Surveillance in the U.S. and globally;
- Epidemiological investigation in the U.S. and globally;
- Development and use of diagnostic laboratory tests and reagents;
- Development of reference strains and reagents for vaccines;
- Vaccine evaluation and licensure;
- Determination of populations at highest risk and strategies for vaccination and antiviral use;
- Assessment of measures to decrease transmission (such as travel restrictions, isolation, and quarantine);
- Deployment of federally purchased vaccine;
- Deployment of antiviral agents in the Strategic National Stockpile (SNS);
- Evaluation of the efficacy of response measures;
- Evaluation of vaccine safety;
- Deployment of the Commissioned Corps Readiness Force and Epidemic Intelligence Service officers; and
- Medical and public health communications.

State Roles:

The State of Pennsylvania will be individually responsible for coordination of the pandemic influenza response within and between their jurisdictions. Specific areas of responsibility include the following:

- Identification of public and private sector partners needed for effective planning and response;
- Integration of pandemic influenza planning with other planning activities conducted under CDC and HRSA's bioterrorism preparedness cooperative agreements with states;
- Coordination with local areas to ensure development of regional plans and to provide resources, such as funding and guidance to assist in planning process;
- Development of data management systems as might be needed to implement components of the plan;
- Assistance to local areas in exercising plans;
- Coordination with adjoining states and counties;
- Provision of capacity for rapid and early detection of a novel virus;
- Confirm detection of a novel virus by laboratory identification;
- Manage and disseminate accurate information for scientific, resource, and policy decisions in public health and healthcare delivery settings;
- Disseminate information to enlist public support and enable personal, community, and business-based preparedness and response;
- Coordinate state and federal activities with local public health partners.

Philadelphia Roles: described within this planning document

Private Sector Roles:

- Establish an ethic of infection control at the workplace, including hand washing and feasible options for working offsite while ill; and
- Establish contingency systems to maintain delivery of essential goods and services.

Individuals and family Roles:

- Take precautions to prevent the spread of infection to others;
- Be prepared to follow public health guidance that may include limitations on travel or large gatherings; and
- Store supplies, including food water, and medications, at home, as recommended, to support essential needs for up to three days (consistent with snow day procedures.)

Command and Control for Influenza Pandemic

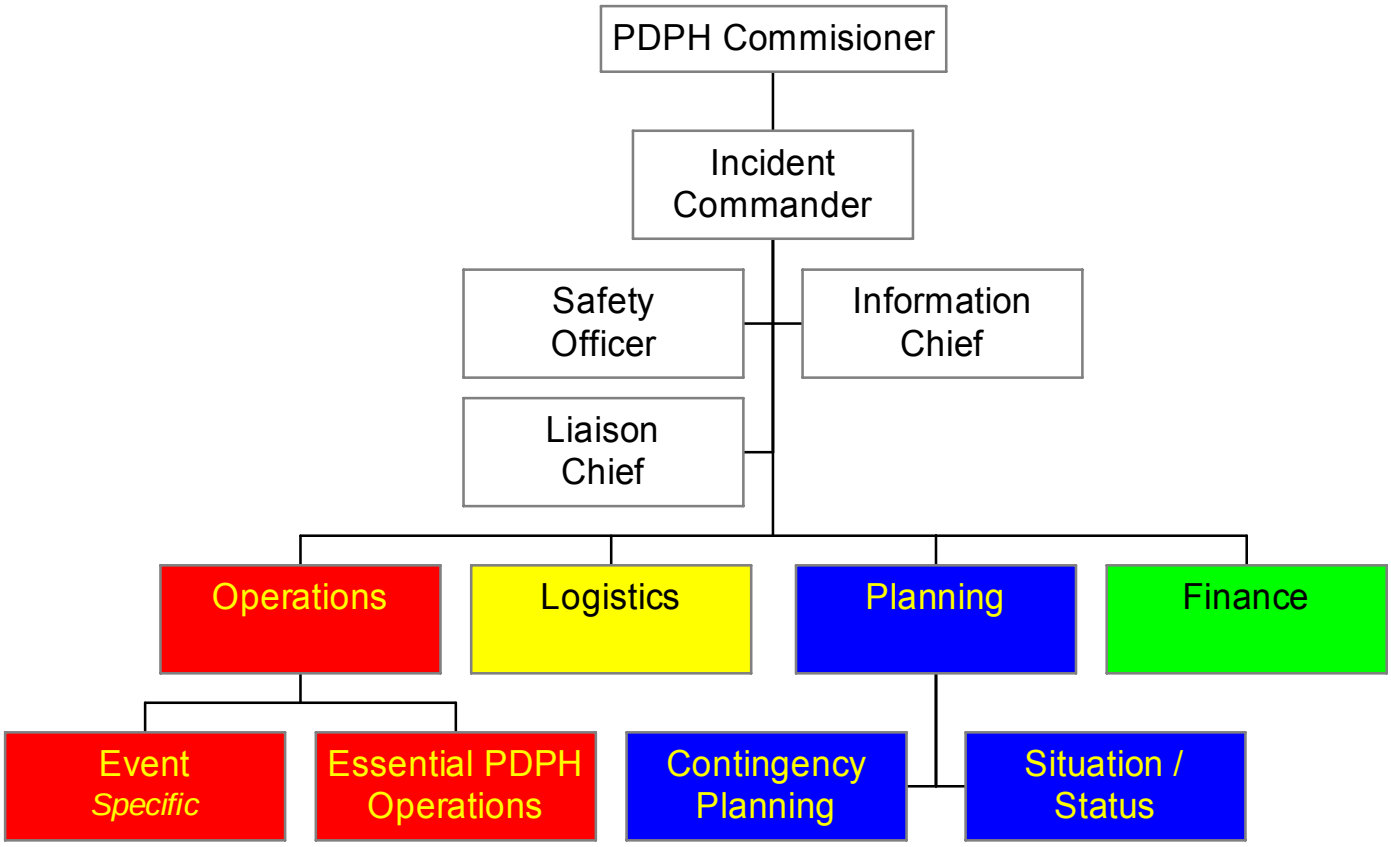
The Philadelphia Department of Public Health will activate an Emergency Operations Center (EOC) to coordinate the health related aspects of the emergency response to a pandemic of influenza. The PDPH Emergency Response Plan provides details on the location, make-up, organization, and specific activities of the PDPH EOC. The PDPH Emergency Response Plan outlines the management structure of the Command and Control center. Essential components are summarized below.

Organizational Structure

The PDPH Emergency Response Plan follows Incident Command System (ICS) structure. ICS is a standardized emergency incident management system widely used by fire departments, law enforcement, and local, state, and federal emergency response agencies to include the National Incident Management System and The National Response Plan. It presents a clear chain of command with suggested ICS role / functional responsibilities, yet is flexible enough to adapt to any emergency situation.

Incorporation of ICS into the emergency preparedness plan will also facilitate communication, coordination, cooperation and integration between PDPH personnel and operations with other city, state and federal emergency response and management organizations.

The “core” PDPH Emergency event response and management organizational structure follows. The Incident Commander based on the scope, complexity and impact of any specific emergency event will determine the expansion or diminution of this core structure throughout each phase of an event.


PDPH Commisioner
Incident Commander
Safety Officer
Information Chief
Liaison Chief
Operations
Logistics
Planning
Finance
Event Specific
Essential PDPH Operations
Contingency Planning
Situation / Status

Summary of Functions

Commissioner: PDPH Chief Executive – Delegates authority to incident commander to manage incident response - serves as support, and executive liaison

Incident Commander: Executive leader for response and management of event defines response goals and objectives

Liaison: Serves as PDPH representative / interface to other agencies at local, state and federal level

Information: Provides guidance and structure for consistent public messaging and staff communications

Operations: provides tactical (response) leadership to achieve operational objectives

Planning: Provide support for incident commander including monitor and display of situation and status, development of incident action plan, contingency plans and recovery plans

Resource/ Logistics: Provides leadership and coordination to assure adequate supplies and resources are in place to support and meet operational objectives

Finance: Provide support for Incident Commander to include finance / expense tracking, procurement and expense recovery

Pandemic Influenza Planning Components

Section I:

Enhancing disease surveillance to ensure early detection of the first cases of pandemic influenza in Philadelphia

The control of influenza transmission in humans requires the early detection of individual cases to arrest transmission, and epidemiologic surveillance to monitor the influenza's health impact (see Attachment 1).

1. SURVEILLANCE

Surveillance – Inter-pandemic and Pandemic Alert Period

During this period, PDPH will conduct regular influenza surveillance as well as surveillance for humans infected with novel strains of influenza, such as H5N1.

Influenza Disease Surveillance

Rapid detection of influenza cases requires a strong partnership between the medical and public health communities. PDPH routinely conducts surveillance for influenza and other respiratory viruses using several methods: outpatient-, hospital-, laboratory-, and mortality-based. PDPH conducts multiple year–round surveillance systems: hospital-based syndromic surveillance, 911 medical call syndromic surveillance, Medical Examiner's Office (MEO) database surveillance, Pennsylvania laboratory case-based influenza reporting, and the National Notifiable Disease Surveillance System (NEDSS) for pediatric mortality.

PDPH mandates the reporting of pediatric influenza-related mortality and institutional outbreaks as well as the reporting of "all unusual disease clusters, disease outbreaks and unusual disease occurrences" which would include cases of pandemic influenza (see Attachments 2 and 3). PDPH staff monitors influenza surveillance data daily. This data includes influenza-like illness (ILI) reports from influenza sentinel providers, laboratory results, faxed and phoned-in reports. A case definition of ILI is provided by CDC on their website (www.cdc.gov). All influenza cases are entered into and tracked in our influenza database. Cases suspicious for pandemic influenza will be investigated more thoroughly (see Attachment 3).

The surveillance activities detailed below are undertaken for seasonal influenza and will also be conducted for pandemic influenza.

Outpatient Surveillance

- **Syndromic Surveillance**

Since the summer of 2003, PDPH conducts daily spatial and temporal analyses of Emergency Department visits and medical calls to the Philadelphia 911 Call Center to assess trends in two influenza-related syndromes: fever-flu and respiratory illness. These syndromic systems are designed to provide the ability to recognize significant increases in the population and to measure the impact of influenza-related illness on the utilization of healthcare services. As of May 2006, PDPH receives data from 23 local hospitals, which represents approximately 2,800 patient encounters per day. Patient chief complaints are coded into specific disease syndromes based on words contained in the complaint field. Aggregate data are analyzed for statistical increases for the city and for each hospital individually. In addition, spatial temporal analyses are run using patient resident ZIP code as a geographical parameter in an effort to detect neighborhood clusters.

During the winter season, the fever-flu syndrome from the hospital emergency department data and 911 medical calls are compared on a weekly basis with positive laboratory tests for circulating influenza viruses. Analyses from the past two winter seasons have provided strong evidence that the fever-flu syndromes correlate well with healthcare utilization patterns related to influenza like presentations (see Attachment 5). Syndromic surveillance has detected emergence of influenza in the region approximately two weeks prior to the first laboratory confirmed cases of infection.

- **Sentinel Provider Network**

PDPH maintains a group of selected healthcare providers who report the proportion of daily outpatient visits that are for influenza-like illnesses as defined by CDC, and periodically submit specimens from a subset of patients to the state public health laboratory for testing. This group is part of the Centers for Disease Control and Prevention's Sentinel Provider Network. Providers are selected based on their willingness to participate in this surveillance project. PDPH works to ensure that at least one of the providers serves communities that might be sentinels for infections imported from areas of the world where avian influenza is epizootic.

- **Health Care Providers**

PDPH regularly urges health care providers to be alert for cases of respiratory illness with risk factors suggestive of influenza. If clustering is noted, these cases should be isolated, and reported immediately to the Division of Disease Control, 215-685-6748 (after hours: 215-686-1776).

To ensure that appropriate control measures are implemented, PDPH requests that providers report individual cases associated with institutional outbreaks. In addition, laboratory-confirmed influenza is a notifiable condition to the Pennsylvania Department of Health; healthcare providers report confirmed cases through the PA-NEDSS system. PDPH epidemiologists on a daily working-day basis review these cases. Individual cases that are identified as associated with long-term care or other facilities in which institutional transmission may be possible will prompt an investigation by DDC staff, with recommendations for disease control (see Attachment 4).

Hospital Surveillance

Beginning in 2003, PDPH has partnered with selected hospitals in Philadelphia to examine risk factors for persons hospitalized with influenza. Hospitals provide PDPH with weekly summaries of aggregate, de-identified lab reports positive for respiratory syncytial virus (RSV), parainfluenza viruses 1, 2, or 3, and adenovirus. The hospital laboratories receive specimens from a variety of healthcare settings, including the ambulatory hospital, private clinics, emergency room, and hospital in-patients. Approximately 10,000 specimens are examined during the annual respiratory season from October through March, representing about 100 specimens per day. The hospital laboratories have stored cultures of all confirmed influenza cases for 15 years. This system allows PDPH to monitor trends in the transmission of all of the major respiratory viruses that are circulating in the metropolitan area.

Laboratory Surveillance

This active surveillance system includes 10 clinical virology laboratories based in hospitals and commercial laboratories serving the region. These laboratories handle the majority of diagnostic laboratory testing for influenza A and B in the City of Philadelphia; they submit de-identified, aggregate data on a weekly basis. These laboratories process specimens from both in-patient settings and outpatient offices, and serve pediatric and adult practice settings. Additionally, PDPH has access to electronic laboratory reporting through PA-NEDSS, which is a name-based laboratory surveillance system. This system allows PDPH to

identify cases in high-risk settings, such as nursing homes and day care centers, and to target appropriate and prompt interventions.

Every season, a sub-set of influenza isolates are forwarded to the Pennsylvania Department of Health Bureau of Laboratories for sub-type identification (e.g. H typing.) Specific efforts are made to collect isolates at the beginning, middle, and end of respiratory virus transmission season, to identify trends in viruses that circulate throughout the season. In addition, isolates from patients who are suspected to have unusual strains (e.g. travelers or other cases with potential exposure to novel influenza strains) can also be tested for sub-type identification at this reference laboratory. PDPH is seeking to improve capacity for rapid identification of unusual influenza strains by working to support the establishment of a new laboratory in Philadelphia with this capacity.

Mortality Surveillance

PDPH participates in the National Notifiable Disease Surveillance System (NNDSS) through which influenza-related pediatric deaths are reported. As one of the participants in the 122 Cities Mortality Reporting System, PDPH monitors pneumonia and influenza related deaths on a weekly basis. PDPH also reviews the Philadelphia Medical Examiner's Office (MEO) database every day and death certificates on a weekly basis. Through the MEO, PDPH has access to information describing a significant proportion of all deaths occurring in Philadelphia, and monitors influenza-associated deaths.

Veterinary Surveillance

PDPH has established strong ties with the Philadelphia Zoo veterinarians who report any unusual diseases or deaths in animals / birds to PDPH. PDPH is working with the Pennsylvania Department of Health to ensure that PDPH is included in communications between the Pennsylvania Department of Health and the Department of Agriculture regarding pertinent issues such as poultry and swine illnesses / deaths or monitoring of influenza strains in these species. PDPH also includes veterinarians in its broadcast alert system and can rapidly disseminate information to veterinarians. PDPH epidemiologists work closely with the veterinary staff at the Philadelphia Zoo, to monitor severe illness among avian and other species. Clinical specimens from animals are forwarded to the PA Department of Agriculture's laboratory for diagnostic testing. Additionally, the PA Department of Agriculture monitors five live-bird markets in Philadelphia. During bi-weekly visits, Department of Agriculture staff takes swabs of birds and droppings as well as provide advice on proper bird handling techniques.

Surveillance -- Preparedness Planning for Pandemic Period

During the initial phases of a pandemic, all aspects of surveillance activities will need to be enhanced. The volume of laboratory requests to confirm the diagnosis of influenza will increase dramatically, and much of this burden will be borne by the existing laboratory network currently serving the City. All of these laboratories perform type-specific rapid tests that can distinguish influenza A from B; at least 3 laboratories also perform polymerase chain reaction (PCR) and culture testing. As of respiratory season 2005-2006, the Pennsylvania Department of Health is the only laboratory in the Commonwealth capable of performing influenza sub-typing (e.g. H typing) analysis. Thus, this laboratory will coordinate access to sub-type specific testing for influenza.

PDPH will coordinate surveillance activities within the City of Philadelphia. This will entail daily interactions with all Philadelphia hospitals through direct contact with Infection Control professionals and other health care facility partners such as hospital epidemiologists and Emergency Department staff. PDPH epidemiologists and investigators will work with healthcare facility professionals to identify incident cases and institute control measures, if appropriate. PDPH would enlist additional staff to conduct case investigations, including nurses from Health Centers, disease surveillance investigators (DSI's) and staff from other public health programs throughout the department. PDPH would continue daily assessments of syndromic surveillance and mortality data. In addition, PDPH will continue to monitor laboratory data, which reflects both outpatient and inpatient illnesses, and continue to monitor ILI form its sentinel provider network.

During outbreak investigations of other diseases, PDPH has regularly implemented these policies, and has developed a mechanism to ‘surge’ the staff needed to complete surveillance activities. PDPH is also developing a Medical Reserve Corps (MRC) during 2006. The MRC could provide additional staff to assist with epidemiologic investigations.

PDPH has developed guidelines that address the need and protocols for identifying novel influenza strains during this pre-pandemic period. These guidelines will be distributed to healthcare providers throughout the City, along with recommendations for biosafety laboratory practices appropriate for respiratory virus isolation for strains such as avian influenza. These guidelines entail collection of clinical specimens from patients at risk for novel-strain acquisition, with appropriate testing performed by the PA Bureau of Laboratories. PDPH will facilitate transport of these specimens.

Surveillance -- Pandemic Period

This period encompasses surveillance activities conducted if a pandemic virus is reported overseas or in the United States.

PDPH will initially enhance surveillance activities and conduct investigations into related cases or outbreaks, particularly in situations where strict institutional infection control practices, isolation, or judicious and prompt usage of antiviral prophylaxis can interrupt transmission. Enhanced surveillance activities would draw upon additional staff (as described above) and will include:

- Communication with to all partners regarding the heightened need for timely and complete surveillance data;
- Ensuring that all sentinel provider surveillance sites are reporting weekly;
- Investigating a subset of influenza cases to identify risk-factors for illness (Please refer to the attached draft Human Influenza A Case Screening Form, see Attachment 3);
- Conducting syndromic, hospital-based, laboratory, and mortality surveillance activities; and more frequent distribution of our Disease Surveillance Summaries to the healthcare community and regional public health partners. (see Attachment 6).
- Reporting Philadelphia influenza activity in a timely manner;
- Facilitating timely reporting of the 122 Cities Mortality Reports and the National Notifiable Disease Surveillance System regarding pediatric deaths; and
- Ensuring influenza-associated mortality data is reported to the Commonwealth of Pennsylvania.

PDPH would draw upon its Outbreak Investigation Working Plan (see Attachment 1) to track the outbreak and identify high-risk populations or activities daily. PDPH would also disseminate information as appropriate to persons in high-risk settings such as its "Guidelines for Prevention and Control of Influenza in Long-Term Care (LTC) Facilities, September 30, 2005." PDPH would obtain and track daily the:

- Numbers and locations of newly hospitalized patients;
- Newly quarantined patients; and
- Number of hospitals with pandemic influenza cases.

With time, the influenza virus will become widespread and PDPH will scale back surveillance activities. As more persons are exposed, the pandemic strain will likely become a routinely circulating influenza A subtype, and there will be little, if any, need to perform specific testing for influenza sub-sub-typing. When that happens, surveillance activities will revert to the routine interpandemic surveillance activities outlined above. PDPH will work with the PA Department of Health, Bureau of Laboratories, and CDC to collect select virology virus isolates during the pandemic period to monitor for genetic and antigenic changes in the pandemic virus, and possible changes in drug susceptibility.

2. LABORATORY DIAGNOSIS

Laboratory -- Inter-pandemic and Pandemic Alert Period

This period encompasses regular laboratory activities conducted during the usual influenza season, and to detect human cases of infection with novel strains of the virus, such as H5N1.

Laboratory Overview

The Pennsylvania Department of Health, Bureau of Laboratories (BOL) performs PCR assays for influenza A, and can distinguish H1, H3, H5 and H7 strains. Clinical specimens from patients suspected to have influenza A infection, including H5N1, include a nasopharyngeal swab or throat sample, and can be tested for influenza A using standard rapid antigen assays. However, these tests have poor negative predictive value, and lack specificity for influenza A (H5N1). The detection of viral RNA via reverse transcriptase PCR is more sensitive for detection, although the results are dependent on primers and assay method used.

Influenza A (H5N1) is classified as a select agent requiring BSL 3+ laboratory conditions. Clinical specimens from suspect cases of influenza A may be tested by PCR assays and commercial antigen detection testing under standard BSL 2 laboratory conditions and practices. PDPH ensures that all clinical sites can do rapid diagnostics.

PDPH, via advisories, regularly informs clinicians and clinical laboratory personnel of protocols for safe specimen collection and testing, how and to whom a potential case of novel influenza should be reported, and the indications and mechanisms for submitting specimens to referral laboratories. This information, that has been disseminated, includes:

- Patients with suspected influenza A (H5N1) or novel pandemic virus should have respiratory specimens submitted to the Pennsylvania Department of Health BOL for diagnostic PCR assays and possible viral isolation, irrespective of the results of rapid diagnostic tests;
- Viral isolation studies will be performed on all specimens that test negative for influenza A with the PCR-based assay;
- PDPH should be notified of all suspect patients, to provide clinical consultation and assist with transport of appropriate specimens to the Pennsylvania BOL. The BOL will ensure that specimens from these patients are processed as a priority, which is important as the volume of specimens submitted to this laboratory for diagnostic testing increases during the usual influenza season; and
- Optimally, an acute- (within 1 week of illness onset) and convalescent-phase (after 3 weeks of illness onset) serum sample should be collected and stored

locally in case testing for antibody to a novel influenza virus should be needed.

During the inter-pandemic and pandemic alert phase, the overall volume of testing is generally proportional to the activity level of influenza illness in the community, with many laboratories offering rapid influenza diagnostic testing. There are several reference clinical virology laboratories in the City; these laboratories perform culture (viral isolation) and routinely send a subset of isolates throughout the respiratory virus season to the PA Bureau of Laboratories for influenza sub-type identification. The two main purposes of laboratory testing are for the usual seasonal diagnosis of influenza and to identify the potential occurrence of a novel virus in a few individuals with the appropriate clinical and epidemiological picture.

Novel Viruses

To identify any potential novel viruses, the BOL has the capacity to perform PCR testing for H1, H2, H3, H5, and H7 influenza isolates. Specimens that are negative by PCR, but are suspected to harbor influenza (particularly novel influenza), will be set up for viral culture, and also referred to CDC for further testing. During the interpandemic and pandemic alert periods, PDPH will issue guidance to healthcare providers in the Philadelphia area with specific recommendations for specimen collection from patients at risk for novel strain acquisition. Up-to-date information regarding the epidemiological and clinical characteristics of infection with these viruses will be provided to the healthcare community to facilitate early recognition of possible cases.

Surge Capacity

PDPH monitors and encourages local laboratory surge capacity. Among the clinical laboratories in the City, most can significantly surge to process additional specimens. For example, one laboratory can surge by 30% without hiring new technicians. PDPH will work with clinical providers and area laboratories during pre-pandemic phases to ensure that appropriate specimens are tested for novel-strain influenza viruses.

Laboratory -- Pandemic Period

This period encompasses laboratory activities conducted if a pandemic virus is reported overseas or in the United States.

The Pennsylvania BOL will receive additional information, including RT-PCR and IFA reagents, as needed, from the CDC. While confirmatory testing will be required when a pandemic begins, the level of testing will decrease as the virus becomes

widespread in the population. PDPH will continue to work closely with the BOL, CDC, and other partners to secure the needed level of testing as the pandemic progresses. During the height of the pandemic, PDPH would urge health care providers and laboratories to screen for influenza A. Because most of the circulating influenza A virus would be the pandemic virus, PDPH would discourage testing of most specimens. If needed, rapid antigen screening tests for influenza A can be used to rule out a diagnosis of infection with the pandemic strain. PDPH would also disseminate information to clinical laboratories regarding the appropriate biosafety conditions and the need to vaccinate laboratory workers who are exposed to specimens from patients with respiratory infections.

As noted in the surveillance section above, viral isolates will be obtained periodically throughout the pandemic period for subtype and additional testing to identify genetic and antigenic changes in the pandemic strain, and to identify possible emergence of viral resistance. Specimens will be collected from patients who appear to demonstrate clinical resistance to antiviral medication, as well as from selected patients according to guidelines that may be issued by CDC and the Bureau of Laboratories during the pandemic period.

Section II

Distributing public stocks of antiviral drugs and vaccines and providing local physicians and hospital administrators with updated guidance on clinical management and infection control

3. HEALTHCARE PLANNING

Healthcare Planning -- Inter-pandemic and Pandemic Alert Period

This period encompasses healthcare planning in areas including pandemic influenza surveillance, incident management infrastructure, hospital communications, education and training, patient triage, clinical evaluation and admission, facility access, occupational health, vaccine and antiviral drug use, surge capacity, and mortuary issues.

Disease Burden

According to the CDC's pandemic influenza planning guide, during a 6 to 12 week influenza pandemic, Philadelphia could expect 3,400 to 8,000 hospital admissions and between 750 and 1,750 deaths.

Planning for Provision of Care in Hospitals

Planning Process

Philadelphia's ability to care of large numbers of cases of influenza during a pandemic depends on the capacity of its healthcare facilities and hospitals. PDPH has requested that every hospital in Philadelphia develop biological response plans that will guide their response to events that result in major infectious disease morbidity and mortality, including bioterrorism events such as smallpox, as well as naturally occurring events such as SARS. In 2001 and 2003, PDPH issued guidelines or check lists for hospitals to assist their preparedness activities; these check lists addressed issues related to surveillance, command and control, surge capacity for patient triage and acute care, expansion of isolation capacity, education and training of staff, and communications. PDPH has periodically reviewed plans from select hospitals, and participated in on-site and regional biological exercises to test these plans.

As an extension of this planning process, PDPH will work with hospitals in the City to ensure that each institution has specific plans for pandemic influenza that extend their general approach to infectious disease emergencies and address issues specifically associated with the control of influenza, including vaccine and antiviral usage. This joint planning process will involve the following activities:

- PDPH will issue information to the medical community on the current novel strain of influenza (H5N1) circulating outside the United States, along with recommendations for the recognition and diagnosis of possibly imported disease.

- In the spring of 2006, PDPH distributed preparedness guidelines that outline healthcare facility responsibilities to area hospitals.

- PDPH is a standing member of the Delaware Valley Healthcare Council Regional Hospital Disaster Preparedness Task Force, and will work with this Task Force to review and present pandemic influenza preparedness guidelines, working with other key partners. This collaboration will also entail working with the Taskforce's four Philadelphia geographic "health care emergency response zones" to review hospital plans for pandemic influenza, identify ongoing resource needs (pre-pandemic) and anticipated needs (pandemic) and test plans through tabletop and field exercises (ongoing).

- PDPH has organized and convened a standing healthcare professional liaison group comprised of infection control professionals, infectious disease physicians, hospital epidemiologists, clinical laboratorians, emergency department clinicians, and institutional planners who will provide ongoing, valuable input into the pandemic planning process. Participation in this process has been expanded to include membership from the major healthcare networks and public health departments from the surrounding suburban counties. Three working groups comprised of select members have been formed to address specific challenges posed by pandemic influenza. Local ethical expertise is involved in guiding these working groups as they work through problem solving. The goal of this work group process will be to produce a collaborative guidance document for healthcare pandemic planning that will be incorporated into public health and healthcare institutional plans. In addition, this process will strengthen communications between the public health sector and healthcare sector by providing a regular forum where information can be exchanged freely.

- PDPH will use its extensive broadcast alert system with over 3000 healthcare professionals as regular recipients to provide ongoing communications and updates to the hospital community. In early 2006, PDPH expects to launch as web-based Philadelphia Health Alert Network (PHAN), providing a secure portal for information exchange between healthcare facilities and the public health department. All advisories, guidelines, and current information regarding pandemic influenza preparedness and the trends associated with novel strains will be available through this site.

In addition, the southeastern Pennsylvania region Emergency Management Agencies are participating in E-team, a web-based emergency management tool. All area hospitals, as well as public safety agencies including public health, will be users of this technology, which is scheduled to be implemented in 2006. Plans are

for this tool to support activities such as hospital resource management, as well as requests for supplies from the Strategic National Stockpile.

Planning Elements for Hospital Preparedness

PDPH will work with hospitals to develop plans that address the following elements:

- Hospital Surveillance
  - Hospital Surveillance for Novel Strains of Influenza
  - Hospital Surveillance for Pandemic Influenza
- Hospital Communications
  - External Communications
  - Internal Communications
- Hospital's Education and Training Plan
  - Staff Education
  - Education of Patients, Family Members, and Visitors
- Triage, Clinical Evaluation, and Admission Procedures
- Facility Access
- Occupational Health
  - Managing Ill Workers
  - Time-Off Policies
  - Reassignment of High-Risk Personnel
  - Psychosocial Health Services
  - Influenza Vaccination and Use of Antiviral Drugs
- Use and Administration of Vaccines and Antiviral Drugs
  - Pandemic Influenza Vaccine and "Pre-Pandemic" Influenza Vaccine
  - Antiviral Drugs
- Surge Capacity (note below)
  - Staffing
  - Bed Capacity
  - Consumable and Durable Supplies
  - Continuation of Essential Medical Services
- Security
- Mortuary Issues

Surge Capacity Issues

- **Supplies**

Hospitals throughout the Delaware Valley participate in geographically defined Healthcare Emergency Response Zones, in which hospitals have developed mutual-aid agreements for resource sharing and staff cross-credentialing. These agreements may augment hospital resources in the setting of a major emergency, although if all hospitals are affected equally as might be expected during a pandemic, neighboring hospitals will have few resources to share. It is expected

that supply needs will likely be met initially by institutional reserves and through working with pharmaceutical vendors and medical suppliers that support healthcare facilities in the region. Eventually, healthcare facilities will likely need to access the Strategic National Stockpile for supplies such as vaccine, antiviral medication, ventilators, and other materials that may be in short supply. Planning for SNS deployment and distribution is an ongoing effort between PDPH, PA DOH, and the hospital community.

- **Staff**

A pandemic will likely affect every hospital in the region, resulting in widespread shortages of staff. PDPH is developing a volunteer Medical Reserve Corps who can supplement the healthcare workforce, both in hospital settings and in non-hospital settings. This corps has a steering committee that includes representation from the Delaware Valley Healthcare Council's (DVHC) hospital preparedness task force, the Philadelphia EMS Medical Director, and the Principal Investigator for the Philadelphia-area Center for Bioterrorism and Emergency Preparedness (CDC-funded training program for emergency preparedness for healthcare professionals.) This committee will ensure that volunteers recruited into this program are equipped with knowledge and skills to assist in the response to a pandemic. Legal issues related to the use of volunteer healthcare professionals are addressed by legal counsel participation in the steering committee. In addition, the National Disaster Medical System may be requested to provide healthcare professional support to the region.

PA DOH also addresses legal issues related to staffing and patient care, including staff-patient ratios. Changes in standards of care and healthcare practices may occur out of necessity during a pandemic situation that overwhelms hospitals. E-team, PHAN, the broadcast alert network operated by both Pennsylvania and Philadelphia public health agencies will provide the infrastructure to communicate information relevant to these issues during the pandemic, and ensure consistency of standards across hospitals throughout the region.

Planning for Provision of Care in Non-Hospital Settings

Non-Hospital Facilities

Hospitals are encouraged to identify appropriate settings away form the Emergency Department for patient screening and evaluation, particularly for individuals who are either contagious or simply the "worried well" (different sites will be needed). In addition, Philadelphia's eight City District Health Centers and 25 federally-qualified health centers (FQHC's) may be able to serve as Neighborhood Emergency Help Centers and provide health education and patient screening services. In 2003, PDPH completed an emergency preparedness capacity assessment of all of these public outpatient facilities, and identified that they would be well suited to perform these functions, although this may require additional resources such as personal

protective equipment (PPE). All participate in the broadcast alert network and thus will receive up-to-date information on public health issues including pandemic influenza. PDPH developed and distributed a checklist for emergency preparedness for public outpatient clinics; all clinical staff are invited to participate in training programs sponsored by PDPH.

Alternative Care Sites

Acute Care

PDPH is working with the DVHC Task Force to identify non-traditional sites within hospital facilities that would be the first sites to add beds and expand care. Current plans include a hierarchy of procedures and bed locations to expand care, that might occur sequentially or simultaneously depending on the number of incident cases presenting for care:

- Cancellation of elective surgeries;
- Discharge of sub-acute patients from med-surgery wards, including ICUs;
- Location of additional beds in private rooms, then in outpatient surgery areas, endoscopy suites, and other similar sites;
- Utilization of healthcare beds geographically accessible to hospital campuses (e.g. long term care, skilled nursing beds, rehabilitation hospital beds);
- Identification and conversion of formerly closed hospitals; and
- Use of non-hospital beds for acute care such as field hospitals, hotels, stadiums.

Healthcare Planning -- Pandemic Period

This period encompasses healthcare activities during a pandemic influenza situation.

Pandemic Influenza Reported Outside the United States

PDPH will:

- Notify all health care facilities and providers of the situation, and maintain contact with healthcare and community partners;
- Urge hospitals to implement hospital surveillance for pandemic influenza, including detection of patients admitted for other reasons who might be infected with the pandemic strain;
- Urge healthcare facilities to implement a system for early detection and antiviral treatment of healthcare workers who might be infected with the pandemic strain of the influenza virus;
- Distribute alerts to healthcare facilities on infection control measures to prevent the spread of influenza; and
- Encourage hospitals to accelerate the training of staff, in accordance with their facilities pandemic influenza education and training plan.

Pandemic Influenza Reported in the United States

PDPH will seek to identify when pandemic influenza cases begin to appear in Philadelphia. Healthcare facilities will need to begin:

- Identification, isolation, and treatment of all patients with potential pandemic influenza;
- Implementation of activities to increase capacity, supplement staff shortages, and provide supplies and equipment; and
- Maintain close communication within health care facilities and with the local health authorities.

4. INFECTION CONTROL

This section encompasses recommendations to ensure infection control in healthcare settings.

PDPH guidance will be targeted to the type of health care setting (hospitals, nursing homes and other residential facilities, pre-hospital care / emergency medical services, home healthcare services, outpatient medical offices, and other locations where pandemic influenza patients are being cared for such as at home).

If an unusual strain of influenza is detected, PDPH will immediately provide health care workers and facilities with the latest information on infection control procedures.

During an influenza pandemic, PDPH will routinely distribute the following information to health care settings and providers.

A. Basic Infection Control Principles for Preventing the Spread of Pandemic Influenza in Healthcare Settings

All patients who present to a health-care setting with fever and respiratory symptoms should be managed according to current CDC recommendations for respiratory hygiene and cough etiquette, and questioned regarding their recent travel history. Human influenza is thought to transmit primarily via large respiratory droplets. Standard Precautions and Droplet Precautions are recommended for the care of these patients. In addition, the importance of appropriate **hand hygiene** for both patients and caregivers in a pandemic cannot be overstressed. The term “hand hygiene” includes both hand washing with either plain or antimicrobial soap and water, and use of alcohol-based hand disinfectants that do not require water. If hands are visibly soiled or contaminated with respiratory secretions, hands should be washed with soap and water. In the absence of visible soiling of hands, approved alcohol-based hand disinfectants are preferred over soap and water because of their superior microbicidal activity, reduced drying of the skin, and convenience. Hand hygiene should always be performed between patient contacts and after removing PPE. It is crucial that sinks, soap, and hand disinfectants are readily accessible in all patient care areas. This information is also available at the CDC website: http://www.cdc.gov/handhygiene/.

The following infection control principles apply to all settings where patients with pandemic influenza may seek and receive healthcare services:

- Limit contact between infected and non-infected persons
    - Isolate cases and suspected cases

  - Only essential personnel should have contact with cases and suspected cases
  - Potentially infected persons should be separated from the general population in common areas, such as waiting rooms

- Contain infectious respiratory secretions
  - Respiratory hygiene education for patients
  - Surgical masks for patients in common areas
  - Strict hand hygiene

- Protect caregivers through appropriate infection control practices
  - Strict hand hygiene
  - Contact and Droplet Precautions
  - N95 respirators and face shields for healthcare workers performing procedures that may aerosolize respiratory secretions (intubation, bronchoscopy, nebulization treatment, suctioning)

Airborne precautions may be instituted for the very first few cases of patients with novel influenza.

  - Patients should be placed in an airborne isolation room, with monitored negative air pressure in relation to the corridor, 6-12 air changes per hour, and air exhausted directly outside or re-circulated following filtration by a high efficiency particulate air (HEPA) filter. If an airborne isolation room is unavailable, a portable HEPA filter may be used.

  - Healthcare workers should wear fit-tested respirators, at least as protective as an N-95 filtering face-piece respirator

These precautions should be continued for 14 days after onset of symptoms, or until either an alternative diagnosis is established, or diagnostic tests indicate that the patient is not infected with a novel influenza virus.

B. Management of Infectious Patients

Respiratory Hygiene / Cough Etiquette

Respiratory hygiene may limit the dispersal of respiratory droplets and thereby reduce the opportunity for infection. PDPH will stress the following elements of respiratory hygiene during an influenza pandemic:

- Education of healthcare facility staff, patients, and visitors on the importance of containing respiratory secretions;

- Signs posted within the health care facility, in appropriate languages, with instructions to patients, families and friends to report symptoms of any respiratory infection;
- Covering the mouth and nose with a tissue or a mask when coughing;
- Placement of persons with respiratory infections at least three feet away from others within common waiting areas.

Droplet Precautions and Patient Placement

Patients with know or suspected pandemic influenza should be placed on droplet precautions for a minimum of 5 days form the onset of symptoms. Immunocompromised persons should be placed on droplet precautions for the length of their illness. Healthcare personnel should wear appropriate PPE (details provided below).

C. Infection Control Practices for Healthcare Personnel

Infection control practices to protect healthcare workers against pandemic influenza are similar to standard and droplet precautions (see Attachment 7).

Personal Protective Equipment (PPE)

- PPE for Standard and Droplet Precautions

Masks (surgical or procedure)

Wear a mask when entering a patient's room. A mask should be worn once and then discarded. Change masks when they become moist. Do not leave masks dangling around the neck. After touching or discarding a used mask, perform hand hygiene.

Gloves

A single pair of disposable patient care gloves should be worn for contact with blood and body fluids, including hand contact with respiratory secretions. Gloves made of latex, vinyl, nitrile, or other synthetic materials are appropriate. Gloves should fit comfortably on the wearer's hands. Remove and dispose of gloves after use with a patient; do not wash and reuse. Perform hand hygiene after glove removal. If gloves are in short supply, as may happen during a pandemic, priorities for glove use may need to be established. Reserve gloves for situations where there is a likelihood of extensive patient or environmental contact with blood or body fluids. Use other barriers (i.e. disposable paper towels, paper napkins) when there is only limited contact with a patient's respiratory secretions such as when handling used tissues. Hand hygiene should then be performed.

Gowns

Most interactions between healthcare workers and patients do not require gowns. Wear an isolation gown, if soiling of clothes with a patient's blood or body fluids is anticipated. A disposable gown made of synthetic fiber or a washable cloth may be used. Ensure gowns are of appropriate size. Gowns should only be worn once and then placed in a waste or laundry receptacle, as appropriate, and hand hygiene performed. If gowns are in short supply, as may happen during a pandemic, priorities for gown use may need to be established.

Goggles or Face Shields

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 face shields should be worn as recommended for standard precautions.

- PPE for Special Circumstances

PPE for Aerosol-Generating Procedures

During procedures that can generate increased small-particle aerosols of respiratory secretions (i.e. endotracheal intubation, nebulizer treatment, suctioning), healthcare workers should wear gloves, gown, face/eye protection, and a N95 respiratory or other appropriate particulate respirator. Use of an airborne isolation room may be considered when conducting such procedures.

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.

Disposal of Solid Waste

Standard precautions are recommended for disposal of solid waste (medical and non-medical.) Please refer to Attachment 7, regarding standard and droplet precautions

Linen and Laundry

Standard precautions are recommended for linen and laundry that might be contaminated with respiratory secretions. Please refer to Attachment 7, regarding standard and droplet precautions

Dishes and Eating Utensils

Standard precautions are recommended for handling dishes and eating utensils used by a patient with known or possible pandemic influenza. Please refer to Attachment 7, regarding standard and droplet precautions

Patient-Care Equipment

Follow standard care for handling and reprocessing used patient-care equipment, including medical devices. Please refer to Attachment 7, regarding standard and droplet precautions.

Environmental Cleaning and Disinfection

Environmental cleaning and disinfection for pandemic influenza follow the same general principles used in healthcare settings. Please refer to Attachment 7, regarding standard and droplet precautions

Postmortem Care

Follow standard procedures for the care of the deceased, including standard precautions for blood and body fluids.

Laboratory Specimens and Practices

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

D. Occupational Health Issues

During a pandemic, PDPH will provide healthcare facilities with specific guidance about managing the health of their own personnel, including the following:

- Education of healthcare personnel about occupational health issues surrounding pandemic influenza

- Screening all workers for influenza symptoms before coming on duty, and sending symptomatic personnel home until they are asymptomatic
- Healthcare workers who have contracted pandemic influenza and have recovered should be prioritized to provide care to other influenza patients, as well as for patients at serious risk for severe morbidity and mortality from influenza
- Personnel at high risk for complications from influenza, such as immunocompromised persons and pregnant women, should be informed about their risk and offered an alternative work assignment away from influenza patient care

E. Reducing Exposure of Persons at High Risk for Complications of Influenza

During a pandemic, PDPH will issue advisories to the media and healthcare facilities urging persons who are at high risk for serious morbidity from influenza to avoid unnecessary contact with healthcare facilities caring for influenza patients. Such persons would include pregnant women and neonates, as well as those with serious underlying illness, such as liver or kidney disease, diabetes, lung disease, and those who are immunocompromised.

F. Healthcare Setting: Specific Guidance

This section describes in detail how hospitals and nursing homes can limit the spread of infection in their facilities. It also offers specific guidance for infection control in other settings, such as outpatient clinics, ambulances, and in the home.

Hospitals

Hospitals can be an efficient setting for disease transmission, and should seek to detect and treat pandemic influenza as quickly as possible in order to prevent nosocomial spread. Important points for infection control in hospitals are listed below.

- Detection of persons entering the facility who may have pandemic influenza
    - Post signs 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:
        - Inform reception and healthcare personnel when they first register for care, and
        - Practice respiratory hygiene/cough etiquette (see www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm)Sample visual alerts are available on CDC's SARS website: http://www.cdc.gov/ncidod/hip/INFECT/RespiratoryPoster.pdf

- Triage patients calling for medical appointments for influenza symptoms:
  - Discourage unnecessary visits to medical facilities.
  - Instruct symptomatic patients on infection control measures to limit transmission in the home and when traveling to necessary medical appointments.

  As the scope of the pandemic escalates, hospitals should 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.

- 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.

- 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.

- "Source control" measures to limit dissemination of influenza virus from respiratory secretions

  - 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:

    - Cover the nose/mouth when coughing or sneezing.
    - Use tissues to contain respiratory secretions.
    - Dispose of tissues in the nearest waste receptacle after use.
    - Perform hand hygiene after contact with respiratory secretions.

    Samples of visual alerts are available through the Philadelphia Department of Public Health. Additional examples may be located on CDC's SARS website:
    http://www.cdc.gov/ncidod/hip/INFECT/RespiratoryPoster.pdf

  - Facilitate adherence to respiratory hygiene/cough etiquette by ensuring the availability of materials in waiting areas for patients and visitors.

- Provide tissues and no-touch receptacles (e.g., waste containers with pedal-operated lid or uncovered waste container) for used tissue disposal.
- Provide conveniently located dispensers of alcohol-based hand rub.
- Provide soap and disposable towels for hand washing where sinks are available.

- Promote the use of masks and spatial separation by persons with symptoms of influenza.

  - Offer and encourage the use of either procedure masks (i.e., with ear loops) or surgical masks (i.e., with ties or elastic) to symptomatic persons to limit dispersal of respiratory droplets.
  - Encourage coughing persons to sit as far away as possible (at least 3 feet) from other persons in common waiting areas.

- Hospitalization of pandemic influenza patients

  - Patient placement

    - Limit admission of influenza patients to those with severe complications of influenza who cannot be cared for outside the hospital setting.
    - Admit patients to either a single-patient room or an area designated for cohorting of patients with influenza.
    - Individual agencies or facilities may **choose** to institute Airborne Precautions for the **first few** cases of patients with novel influenza. In this case:
      - Patients should be placed in an airborne isolation room, with monitored negative air pressure, 6-12 air changes per hour, and air exhausted directly outside or re-circulated following filtration by a high-efficiency particulate air (HEPA) filter. If an airborne isolation room is unavailable, a portable HEPA filter may be used.
      - Healthcare workers should wear fit-tested respirators at least as protective as an N-95 filtering mask
      - These precautions should be continued for 14 days after onset of symptoms, or until an alternative diagnosis is established, or diagnostic tests indicate that the patient is not infected with a novel influenza virus.

- Cohorting

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

- Patient transport

  - Patients should only move or be transported out of the isolation area when medically necessary.
  - Consider having portable x-ray equipment available in areas designated for cohorting influenza patients.
  - 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.

- Visitors

  - Screen visitors for signs and symptoms of influenza before entry into the facility and exclude persons who are symptomatic.
  - Family members who accompany patients with influenza-like illness to the hospital are assumed to have been exposed to influenza and should wear masks.
  - Limit visitors to persons who are necessary for the patient's emotional well-being and care.
  - Instruct visitors to wear surgical or procedure masks while in the patient's room.
  - Visitors must receive instruction and must perform proper hand hygiene.

- Control of nosocomial pandemic influenza transmission

  - 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.)

  - 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:

    - Cohorting of patients and staff on affected units
    - Restriction of new admissions (except for other pandemic influenza patients) to the affected unit(s)
    - Restriction of visitors to the affected unit(s) to those who are essential for patient care and support

  - 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

Nursing Homes and Other Residential Facilities

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 Philadelphia region, PDPH will notify nursing homes and other residential facilities to implement aggressive measures to prevent introduction of the virus.

- Prevention or delay of pandemic influenza virus entry into the facility

    - Control of visitors
        - 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.
        - Enforce visitor restrictions by assigning personnel to verbally and visually screen visitors for respiratory symptoms at points of entry to the facility.
        - Provide a telephone number where persons can call for information on measures used to prevent the introduction of pandemic influenza.

    - Control of personnel

        - 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.

- Monitoring patients for pandemic influenza and instituting appropriate control measures

  Despite aggressive efforts to prevent the introduction of pandemic influenza virus, persons in the early stages of pandemic influenza could unwittingly 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.

    - Early in the progress of a pandemic in the region, increase resident surveillance for influenza-like symptoms. Notify PDPH if a case(s) is suspected.
    - 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.
    - Cohort residents and staff on units with known or suspected cases of pandemic influenza.
    - Limit movement within the facility (e.g., temporarily close the dining room and serve meals on nursing units, cancel social and recreational activities).

Pre-hospital Care (Emergency Medical Services)

Patients with severe pandemic influenza or disease complications are likely to require emergency transport to the hospital. PDPH will disseminate the following information to protect Emergency Medical Services (EMS) personnel during transport.

- Screen patients requiring emergency transport for symptoms of influenza.
- Follow standard and droplet precautions when transporting symptomatic patients.
- Consider routine use of surgical or procedure masks for all patient transport when pandemic influenza is in the community.
- All EMS staff must perform strict hand hygiene, including use of waterless hand sanitizer on all EMS vehicles.
- 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.
- Oxygen delivery with a non-rebreather facemask can be used to provide oxygen support during transport. If needed, positive-pressure ventilation should be performed using a resuscitation bag-valve mask.
- Unless medically necessary to support life, aerosol-generating procedures (e.g., mechanical ventilation) should be avoided during pre-hospital care.
- 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.
- Notify the receiving facility that a patient with possible pandemic influenza is being transported.
- Follow standard operating procedures for routine cleaning of the emergency vehicle and reusable patient care equipment.

Home Healthcare Services

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 Philadelphia community, home health agencies should consider contacting patients before the home visit to determine whether persons in the household have an influenza-like illness (ILI).

- Home healthcare providers who enter homes where there is a person with ILI 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.

- If patients with pandemic influenza are in the home, consider:

    - Postponing nonessential services
    - Assigning providers who are not at increased risk for complications of pandemic influenza to care for these patients

Outpatient Medical Offices

Patients with non-emergency symptoms of ILI 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 non-clinical office staff.

- Detection of patients with possible pandemic influenza

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

        - Inform reception and healthcare personnel when they first register for care
        - Practice respiratory hygiene/cough etiquette (see www.cdc.gov/ncidod/hip/enviro/Enviro_guide_03.pdf)

          Sample visual alerts are available from the Philadelphia Department of Public Health Division of Disease Control, and on the CDC's SARS website: http://www.cdc.gov/ncidod/hip/INFECT/RespiratoryPoster.pdf

    - Triage patients calling for medical appointments for influenza symptoms:

        - Discourage unnecessary visits to medical facilities.

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

- "Source control" measures

    - 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:

        - Cover the nose/mouth when coughing or sneezing.
        - Use tissues to contain respiratory secretions.
        - Dispose of tissues in the nearest waste receptacle after use.
        - Perform hand hygiene after contact with respiratory secretions.

    - Facilitate adherence to respiratory hygiene/cough etiquette. Ensure the availability of materials in waiting areas for patients and visitors.

        - Provide tissues and no-touch receptacles (e.g., waste containers with pedal-operated lid or uncovered waste container) for used tissue disposal.
        - Provide conveniently located dispensers of alcohol-based hand rub.
        - Provide soap and disposable towels for hand washing where sinks are available.

    - Promote the use of procedure or surgical masks and spatial separation by persons with symptoms of influenza.

        - 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.
        - Encourage coughing persons to sit at least 3 feet away from other persons in common waiting areas.

- Patient placement

    - Where possible, designate separate waiting areas for patients with symptoms of pandemic influenza. Place signs indicating the separate waiting areas.
    - Place symptomatic patients in an evaluation room as soon as possible to limit their time in common waiting areas.

Other Ambulatory Settings

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 Philadelphia region, these facilities should implement control measures similar to those recommended for outpatient physician offices. Other infection control strategies that may be utilized include:

- Screening patients for ILI by phone or before coming into the facility and rescheduling appointments for those who do not require urgent care.
- Canceling all non-emergency services when there is pandemic influenza in the community

G. Care of Pandemic Influenza Patients at Alternative Sites

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). 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.

Care of Pandemic Influenza Patients in the Home

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 a household member provides care, 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.

- Management of influenza patients
    - Physically separate the patient with influenza from non-ill persons living in the home as much as possible.
    - 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.

- Management of other persons in the home

  - 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.
  - If unexposed persons must enter the home, they should avoid close contact with the patient.
  - 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.
  - Household members should monitor closely for the development of influenza symptoms and contact a telephone hotline or medical care provider if symptoms occur.

- Infection control measures in the home

  - All persons in the household should carefully follow recommendations for hand hygiene (i.e., hand washing 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.
  - 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.
  - 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.
  - 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.
  - 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.
  - Normal cleaning of environmental surfaces in the home should be followed.

Recommendations For Infection Control in Schools and Workplaces

- In schools and workplaces, infection control for pandemic influenza should focus on:
    - Keeping sick students, faculty, and workers away while they are infectious.
    - Promoting respiratory hygiene/cough etiquette and hand hygiene as for any respiratory infection.
- 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. The benefit of wearing masks in these settings has not been established. Educational messages and infection control guidance for pandemic influenza are available for distribution. (CDC will develop educational materials appropriate to various audiences.)

Recommendations For Infection Control in Community Settings

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.

5. CLINCIAL GUIDELINES

Information Exchange

PDPH will receive information from multiple sources, including EPI-X. Key PDPH staff are registered users, and also receive notifications directly through CDC's email-based Health Alert Network. PDPH will convey information about the above infection control practices and the below clinical guidelines to physicians using both the Pennsylvania and the Philadelphia Health Alert Network, in addition to providing ongoing updates regarding the epidemiology of the pandemic as determined by local, state-wide and national surveillance data.

As described in Section 3, PDPH has a communications infrastructure that encompasses broadcast alerting (email and fax) to over 3000 recipients. There are approx 4,200 MDs and 550 Doctors of Osteopathy in Philadelphia. PDPH has their names and addresses, and is currently doing a mass mailing to obtain fax numbers and email addresses to add to the system. PDPH has updated this dataset in January 2006, which has enrolled approximately 80% of all practicing, licensed, frontline healthcare personnel. PDPH routinely uses and tests this communication system by regularly updating providers on pertinent public health events. In addition, in 2006 PDPH will begin use of a secure website to disseminate information to the medical community.

Clinical Guidelines -- Inter-pandemic and Pandemic Alert Period

This period encompasses activities to ensure early recognition of an illness caused by a novel influenza strain using a combination of clinical and epidemiological features. The primary goal of rapid detection is to quickly identify and contain cases of novel influenza.

The PDPH's roles will include:

- Educate healthcare providers about novel and pandemic influenza;
- Provide or facilitate testing and investigation of suspected novel influenza cases; and
- Conduct follow-up of suspected novel influenza cases.

Please also refer to Attachments 8 and 9:

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

Criteria for Evaluation of Patients with Possible Novel Influenza

Clinical Criteria

Current clinical criteria for human infection with a novel influenza virus are fever (>38C) plus one of the following: sore throat, cough, or dyspnea. Clinical criteria will be modified, as needed, should the pandemic influenza virus present with a different clinical spectrum.

PDPH will continue to update the medical community with information describing typical presentation, and with guidance from PDPH and the Centers for Disease Control and Prevention (CDC) on testing patients for influenza infection. Such guidance may include clinical presentation as well as epidemiologic parameters that include recent overseas travel history to an area where a novel strain has been transmitted to either animals or humans, or close contact with an individual who has that exposure. Testing for the current avian influenza A (H5N1) should be considered on a case-by-case basis in consultation with PDPH for hospitalized and ambulatory patients with:

- Documented temperature >38°C (100.4°F), AND
- One or more of the following: cough, sore throat, shortness of breath, AND
- History of contact with poultry (e.g., visited a poultry farm, a household raising poultry, or a bird market) within 10 days of symptom onset, OR
- History of contact with a known or suspected human case of influenza A (H5N1) in an H5N1-affected country within 10 days of symptom onset

Laboratory evaluation for novel influenza A viruses is recommended only for:

- Hospitalized patients with severe ILI, including pneumonia, who meet the epidemiologic criteria described below;
- 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 know or suspected human case of novel influenza.)
- Recommendations for the evaluation of patients with respiratory illnesses.

Epidemiologic Criteria

Epidemiologic criteria focus on the risk of exposure to a novel influenza virus with pandemic potential. The maximum interval between potential exposure and symptom onset is 10 days. Epidemiological criteria include:

- Travel risks
  Persons who have recently visited or lived in an area affected with a highly pathogenic influenza virus, or have had direct contact with persons who have done so.
- Occupation risks

Persons who work on farms or live poultry markets or who process or handle poultry infected with suspected influenza virus.

Clinical Management of Patients Who Meet the Criteria for Novel Influenza

When a patient meets both the clinical and epidemiological criteria for a suspected case of novel influenza, healthcare personnel should:

- Implement infection control precautions, including Standard and Droplet Precautions (Please refer to Attachment 7, on Standard and Droplet precautions)
- Notify the PDPH
- Obtain clinical specimens for novel influenza virus testing
- Evaluate alternate diagnosis
- Decide on inpatient or outpatient management
- Initiate antiviral treatment as soon as possible; and
- Assist PDPH and other public health personnel with identification of potentially exposed contacts.

Clinical Management of Patients Who Test Positive for Novel Influenza

Healthcare personnel should continue antiviral treatment and all isolation and infection control procedures, and isolate the patient from seasonal influenza patients.

Clinical Management of Patients Who Test Negative for Novel Influenza

False negative tests may occur. Therefore, healthcare personnel should consider continuing antiviral treatment and all isolation and infection control procedures that are deemed appropriate based on clinical and epidemiological considerations.

Clinical Guidelines -- Pandemic Period

During this period of high community prevalence, clinicians will rely primarily on diagnosing influenza based on clinical features. The primary goal of rapid detection during this phase is to identify and triage cases of pandemic influenza during a time when outpatient clinics and emergency departments might be overwhelmed with suspected cases.

The PDPH's roles will include:

- Update healthcare providers regularly as the pandemic progresses
- Provide or facilitate testing and investigation of pandemic influenza cases; and
- Work with the Pennsylvania State Department of Health and the CDC to investigate and report on clinical aspects of pandemic influenza cases, including mortality risk and risk factors for disease.

Clinical and Epidemiologic Criteria

During a pandemic, CDC will provide PDPH with updates on the clinical presentation of pandemic influenza cases. Based on past experience, the clinical criteria for suspected cases of pandemic influenza will be: temperature

>38C plus one of the following: sore throat, cough, or dyspnea. Once the pandemic influenza virus is established in Philadelphia, clinical criteria will be sufficient for classifying the patient as suspected pandemic influenza.

Clinical Management of Patients Who Meet the Criteria for Pandemic Influenza

Healthcare personnel should:

- Follow PDPH recommendations for reporting patients
- If the patient is hospitalized, implement infection control precautions, including Respiratory Hygiene/Cough Etiquette. Droplet Precautions should be implemented for a minimum of 5 days. Standard Precautions should also be implemented.
- Obtain clinical specimens for evaluation as clinically indicated and as directed by PDPH. Once pandemic influenza is established in Philadelphia, influenza testing may be limited to a subset of pandemic influenza cases as part of ongoing surveillance
- Decide on inpatient or outpatient management. Outpatients should be cared for by a designated caretaker who may benefit from using a surgical or procedure

mask (although no studies have assessed the use of masks at home to reduce the risk of infection).

Clinical Management of Pandemic Influenza Patients

Antivirals, supportive care, and the rapid identification and treatment of secondary bacterial infections will be the main components of treating pandemic influenza patients.

Children less than 18 years of age with suspected or confirmed pandemic influenza should not be treated with aspirin or other salicylate products because of an increased risk of Reye syndrome.

PDPH will regularly distribute updates to treatment guidelines during this phase.

6. VACCINE DISTRIBUTION AND USE

Vaccine -- Inter-pandemic Period

Activities during this period include planning for vaccine distribution, vaccination of priority groups, adverse event monitoring, tracking of vaccine supply and administration, legal preparedness, and training.

Vaccination Against Seasonal Influenza Virus Strains

PDPH will continue and enhance its efforts to vaccinate high-risk population groups against influenza and to vaccinate the recommended target groups against pneumococcal pneumonia.

Preparedness Planning for Vaccination Against a Pandemic Influenza Virus

A limited amount of H5N1 vaccine is being stockpiled in the event of an H5N1 pandemic, and other vaccines to protect against influenza strains with pandemic potential may also be produced for the stockpile. Within 4-6 months after identification of a new pandemic influenza virus, a monovalent vaccine will likely be available. Because persons will likely have never been exposed to this new virus, healthy adults will likely require two doses of 90 μg vaccine to impart immunity.

Vaccination of Priority Groups

The supply of vaccine will likely be limited and must therefore be appropriately targeted. Prior to administration of any vaccine, the PDPH Pandemic Influenza Coordinating Committee will convene to review the current epidemiological situation, the vaccine supply, and the below initial vaccination priority group recommendations proposed by HHS. The group will then revise the below table as appropriate, and begin implementation of vaccination of the target groups.

Table 1. Proposed Vaccine Priority Group Recommendations, Department of Health and Human Services (HHS)

Tier	Subtier	Population	Rationale
1	**A**	Medical workers with direct patient contact, support for direct patient contact and vaccinators	Health care workers must provide care for the ill and serve as Vaccinators
	B	Persons ≥ 65 years of age with 1 or more influenza high-risk conditions, not including essential HTN	These groups are at high risk of hospitalization and death. Excludes elderly in nursing homes and those who are immunocompromised and would not likely be protected by the vaccine
		Persons 6 months to 64 years, with 2 or more influenza high-risk conditions, not including essential HTN	
		Persons 6 months or older with history of hospitalization for pneumonia or influenza or other influenza high-risk condition in the past year	
	C	Pregnant women	In past epidemics, pregnant women have been at risk. Vaccine also protects infant who cannot receive vaccine.
		Household contacts of severely immunocompromised persons who would not be vaccinated due to likely poor response to vaccine	Vaccinating household contacts of immunocompromised and young infants will decrease risk of exposure/infection of those who cannot be protected by vaccine.
		Household contacts of children <6 months old	
	D	Public health emergency response workers critical to pandemic response	Critical to plan, monitor, and implement response, including vaccine administration.
		Key government leaders	Preserve decision making capacity to plan and implement a response

2	**A**	Healthy 65 years and + 6 months to 64 years, with 1 high-risk condition 6-23 months old and healthy	Groups at increased risk, but not as high risk as population in Tier 1B
	B	Other public health emergency responders Public safety workers, including police, fire, 911 dispatchers, and correctional facility staff Utility workers essential for maintenance of power, water, and sewage system Transportation workers transporting fuel, water, food, and medical supplies and public ground transportation Telecommunications / IT for essential operations and maintenance	Includes critical infrastructure groups that have impact on maintaining health (e.g. public safety or transportation of medical supplies and food); implementing a pandemic response, and on maintaining societal functions
3	**A**	Other key government decision makers Funeral directors / embalmers	Important societal groups for a pandemic response
4		Healthy people 20-64 years of age, not included in above categories	All persons not included in other groups

Vaccine Distribution and Use

PDPH will establish either small vaccination clinics or large Points of Distribution (POD's) to administer vaccine based on the number of persons to be vaccinated. The PDPH Public Health Emergency Response Plan details:

Issue	Information in the PDPH Public Health Emergency Response Plan
Command and Control	The coordination of POD activities by the PDPH Emergency Operations Center (EOC) via a National Incident Management System (NIMS) approach
	Aid agreements in place or in process regarding neighboring jurisdictions, Universities, etc.
POD's	Which sites have been selected for POD's and the selection criteria. In the event of a mass vaccination event targeting the entire population, 40 POD's would be opened
	Administrative procedures that would be used at the POD, including the necessary forms;
	Screening and vaccination procedures
Staffing	The staffing requirements for POD's (95 total staff, with a detailed breakdown)
	The organizational structure for staff at a POD and reporting requirements
	Recruitment of POD staff through the Medical Reserve Corps
Security	Department, badging, and credentialing; The security procedures at POD's, including the role of the Philadelphia Police
Vaccine	Vaccine security issues (e.g. Philadelphia Police Department would secure the vaccine during distribution), cold chain requirements, transportation and storage issues, and biohazardous waste issues
Training	The training plans and schedule for POD staff
Vulnerable Populations	Plans to reach vulnerable populations, such as those in nursing homes and detention centers, the frail elderly, and the disabled

PDPH is in the process of informing the community of the general plans for vaccination at POD's. However, PDPH does not plan to release the names / locations of POD's until POD's are activated. This is consistent with our Public Health Emergency Response Plan, where POD locations may vary by type of emergency (i.e. area of the city that is affected) and the need for security to minimize possible secondary tragedies, such as bombs being detonated at POD's during a bioterrorist event.

PDPH is working with healthcare partners and other stakeholders in developing emergency response plans for the distribution on prophylactic supplies, including vaccines. PDPH would distribute vaccine to special populations, such as homebound elderly and persons in detention centers or nursing homes. PDPH would provide screening forms and vaccine administration guidelines.

Please refer to the PDPH Public Health Emergency Response Plan for additional details.

As per usual protocol, CDC's VACMAN system will be used for vaccine ordering, inventory, and distribution. Vaccine would be stored either at the Health Department's Vaccine Storage Facility, or City Morgue.

Vaccine Registry

PDPH has established and maintains the KIDS Vaccination Registry. During early 2006, this registry will be expanded to all persons less than 19 years of age and the registry will become web-based. The KIDS Vaccination Registry includes demographic information for the vaccinated person, identification information for the physician who administered the vaccine, and a comments section for vaccine adverse events. The registry can easily be updated to collect information on new vaccines. Healthcare providers are able to view the data, but if multiple data entry sites are needed during an epidemic situation, PDPH can alter the registry so that designated healthcare providers can enter information. PDPH can easily alter the registry to include information describing the vaccinated person's risk category. The registry also can capture VAERs.

If pandemic influenza vaccine was available, PDPH would either use this database or would establish a short term registry for the event that would later be incorporated into the KIDS Vaccination Registry as has been done in the past. PDPH could also enter data into a CDC web based system if one were developed. PDPH is also exploring scanning technology to speed data entry.

Second-Dose Vaccination

A vaccine against pandemic flu will likely require two doses, administered at least one month apart, to provide adequate immunity. Using the above mentioned immunization registry, PDPH will maintain at least the names and contact information of persons receiving the first dose, and will implement a recall system for receipt of the second dose. The registry uses a reminder recall system based on provider zip code, and can generate phone numbers or post cards for mailing.

INVESTIGATIONAL NEW DRUG USE

A new pandemic flu vaccine that is produced may require implementation of Investigational New Drug (IND) provisions. PDPH will ensure:

- Inventory control;
- Completion of signed consent form for each vaccine; and
- Mandatory reporting of adverse events.

VACCINE MONITORING AND DATA COLLECTION

PDPH, in collaboration with CDC and other partners, will undertake studies of vaccine effectiveness during a pandemic influenza situation as appropriate. PDPH will utilize the influenza registry to determine who has been vaccinated, vaccine coverage, and to track other pertinent information.

As described above, the PDPH KIDS Vaccination Registry contains a comments section regarding vaccine adverse events. Vaccine-related adverse events will be monitored through expansion of the PDPH existing system for monitoring spontaneous, voluntary reports of adverse events and reactions that are conveyed to PDPH staff. The CDC's VAERS form will be the standard form used to collect this information and PDPH will forward these findings to CDC as per current protocols. Additional staff to receive and record such reports may be necessary during a mass vaccination program; the Philadelphia Medical Reserve Corps, along with other PDPH staff from non-infections disease programs may be recruited to assist with this effort. If possible, PDPH will work to adapt the current CDC VAERS form to a scannable form that would avoid the necessity for manual data entry into an electronic database.

PUBLIC HEALTH COMMUNICATIONS

PDPH will work with federal partners to develop accurate information regarding the pandemic. PDPH will disseminate to the news media, healthcare providers, state health officials, and other partners:

- Information on the rationale for prioritization of vaccination and the list of priority groups;
- When and where vaccine is available;
- Importance of vaccination given the likelihood of subsequent pandemic waves; and
- Vaccine information sheets that describe the risks and benefits of, and contraindications to, vaccination.

COORDINATION WITH BORDERING JURISDICTIONS

As outlined in the PDPH Public Health Emergency Response Plan, PDPH and the City of Philadelphia will work closely with bordering jurisdictions to coordinate vaccine distribution plans. PDPH is particularly working closely with the jurisdictions in the Metropolitan Statistical Area to develop Cooperative Agreements and a Unified Command Structure.

Several forums for coordinated planning and communication between public health agencies exist in the Philadelphia metropolitan area:

- The southeastern Pennsylvania Regional Counter-Terrorism Task Force encompasses public safety agencies and their partners throughout the region; a public health sub-committee convenes regularly to coordinate preparedness planning.
- PDPH convenes a multi-state Bio-preparedness Working Group comprised of public health agencies from Pennsylvania, Delaware, Maryland, and New Jersey to share information and coordinate planning. This group has recently evolved to address mass dispensing planning for public health emergencies, as part of the Philadelphia Cities Readiness Initiative.
- PDPH and PA DOH representatives participate in the Health Alert Networks operated by public health agencies in New Jersey and Delaware, and those states receive alerts from Philadelphia and Pennsylvania, providing a mechanism for sharing public health practices and protocols.

LEGAL PREPAREDNESS

The City of Philadelphia regulations governing the control of communicable and noncommunicable diseases and conditions states in section 6-210, Immunizations:

> "(1) Whenever it is necessary to control effectively the spread of communicable disease, the Department may, in accordance with regulations prescribed by the Board, require the immunization of any person against any communicable disease listed and designated by the Board as one against which immunization is effective."

PDPH works closely with the Philadelphia City Solicitor to determine the legal authorities to:

- Review the plans for vaccine distribution

- Identify appropriate healthcare professionals with legal authority to administer vaccine and dispense medications during an emergency

- Work with professional organizations and unions to consider options for emergency performance of tasks outside of standard job descriptions; and

- Determine the appropriate mechanisms to enforce Pennsylvania and Philadelphia's legal authority to enforce quarantine and or mandatory vaccination to protect the public health, and define protocols to access that authority to protect the health of the public.

TRAINING AND EXERCISES

PDPH has conducted several training sessions for POD management staff, including a course for approximately 50 participants in March 2005, and smaller sessions for about 10 staff during April and October 2005. PDPH has developed a training manual and finalized a one-day POD management staff-training course, based on lessons learned from previous training experiences. PDPH has also developed a training video, and web based training options. PDPH has begun to implement a series of trainings for POD management staff in early 2006.

PDPH exercises components of its Public Health Emergency Response Plan twice a year. On October 7, 2005, PDPH conducted a mass vaccination clinic at a community health center that provided influenza and pneumococcal vaccines to the elderly. During 2.5 hours, 2059 doses of influenza vaccine and pneumococcal vaccine were administered to 1559 people (vaccine administration rate = 800 doses per hour). During this exercise, additional pneumococcal vaccine was required and PDPH worked with the Philadelphia Police Department to resupply the vaccine rapidly. This exercise included vaccine procurement and storage, ensuring security of the vaccine and at the POD, vaccine distribution and monitoring of adverse events.

During 2006, PDPH will test the command and control component of a mass vaccination response as well as a mass vaccination component.

Vaccine -- Pandemic Period

During this period, PDPH and partners will work together to implement plans for vaccine distribution and use.

Before a Vaccine is Available

PDPH will:

- Meet with partners, including the Pandemic Influenza Planning Committee, to review the major elements in the vaccine distribution plan;
- Modify the plan to account for interim updates on recommended priority groups, projected vaccine supplies and timelines for availability, and staffing estimates for mass vaccination;
- Notify the medical community about the status of the plan and expected vaccine availability;
- Update and disseminate public information on the production, distribution, and use of pandemic influenza vaccine; and
- Conduct training for public health staff and partners involved in distributing and administering vaccines.

When a Vaccine Becomes Available

PDPH will:

- Work with healthcare partners and other stakeholders to distribute, deliver, and administer vaccine (either stockpiled pandemic type or influenza) to designated groups;
- Vaccinate persons in priority groups, and phase in additional groups as more vaccine becomes available;
- Provide a second dose, if required;
- Monitor vaccine supply, distribution, and use;
- Monitor and investigate adverse events;
- Continue communication with partners, including the public; and
- Evaluate the entire response after the epidemic has concluded.

7. ANTIVIRAL DISTRIBUTION AND USE

Antivirals -- Inter-pandemic Period

During this phase, PDPH will work with healthcare providers to use ensure appropriate use of antiviral medication in the management of cases of novel strains of influenza, procure and maintain local stockpiles of antiviral drugs, and develop plans for distribution and use of antiviral drugs during a pandemic.

Use of Antivirals in Management of Cases of Novel Influenza

Use of Antivirals for Treatment

As of fall 2005, CDC recommends treatment of patients with novel strains of influenza should include use of oseltamivir or zanamivir (neuraminidase inhibitors) as early as possible and ideally within 48 hours of symptom onset.

Note: the antiviral susceptibility of any future pandemic strain of influenza is unpredictable. Guidelines for the use of all antiviral medication during pre-pandemic and pandemic situations will be updated and issued to the medical community, as appropriate to the circulating strain of influenza.

The recommended dosing of oseltamivir is:

- Treatment for adults: 75 mg twice daily for 5 days (150 mg twice daily for 7-10 days may be considered for treatment of severe infections)
- Treatment for children (approved for children > 1 year of age): weight adjusted twice-daily doses for 5 days in children > 1 year of age (higher dosage and longer duration may be considered for treatment of severe infections
    - <15 kg, prescribe 30 mg twice daily
    - 15-23 kg, prescribe 45 mg twice daily
    - 23-40 kg, prescribe 60 mg twice daily
    - >40 kg, prescribe 75 mg twice daily
- Prophylaxis for adults: 75 mg once daily for 7-10 days
- Prophylaxis for children (approved for children > 13 years of age): Once daily dosing, by weight as described above

Use of Antivirals for Prophylaxis of Contacts

If deemed appropriate by CDC and PDPH, close contacts (e.g. family, schoolmates, workmates) may receive post-exposure prophylaxis with oseltamivir. If exposure occurs during the regular influenza season, the patient's healthcare contacts should be vaccinated against seasonal influenza to reduce the possible risk of co-infection and re-assortment of seasonal and novel strains.

Use of Antivirals for Containment of Disease Clusters

Early disease clusters will be investigated and prophylaxis may be administered to persons with confirmed or suspected cases as well as person in the affected community. Targeted antiviral prophylaxis would require PDPH conduct intensive case finding.

Preparedness Planning for Use of Antivirals During a Pandemic

As part of PDPH's emergency response planning, PDPH works with State and local partners in developing plans for distribution and administration of prophylactic pills (e.g. antibiotics and antivirals) and vaccines to protect from bioterrorist or naturally occurring events. This plan is being developing in conjunction with surrounding jurisdictions in the metropolitan statistical area in an attempt to ensure consistent plans.

The supply of antiviral drugs will likely be limited and must therefore be appropriately targeted. Prior to administration of antiviral drugs, the PDPH Pandemic Influenza Coordinating Committee will convene to review the current epidemiological situation, the antiviral drug supply, and the below initial antiviral drug administration priority group recommendations. The group will then revise the below table as appropriate, and begin implementation of antiviral drug administration to the target groups.

PDPH is working with local hospitals to identify the pre-pandemic needs for antiviral medication. PDPH will work with hospitals that wish to maintain institutional reserves of antiviral medications (e.g. oseltamavir) and also plans to maintain its own cache to be available for hospital and non-hospital usage, as appropriate to the guidelines that are issued by CDC authorities during the pandemic period.

Table 1. Proposed Antiviral Drug Priority Group Recommendations, Department of Health and Human Services

	Group	Rationale
1	Patients admitted to hospital*	Consistent with medical practice and ethics to treat those with serious illness and those most likely to die
2	Health care workers with direct patient contact and emergency medical services providers	Healthcare workers are required for quality medical care. There is little surge capacity among healthcare sector personnel to meet increased demand.

3	Highest risk outpatients: immunocompromised persons and pregnant women	Groups at greatest risk of hospitalization and death; immuncompromised cannot be protected by vaccination.
4	Pandemic health responders (public health, vaccinators), public safety (police, fire, corrections), and government decision-makers	Groups are critical for an effective public health response to a pandemic
5	Increased risk outpatients: young children 12-23 months of age, persons ≥ 65 years old, and persons with underlying medical conditions.	Groups are at high risk for hospitalization and death
6	Outbreak response in nursing homes and other residential settings	Treatment of patients and prophylaxis of contacts is effective in stopping outbreaks; vaccination priorities do not include nursing home residents.
7	Healthcare workers in emergency departments, ICUs, dialysis centers and EMS providers	These groups are most critical to an effective healthcare response and have limited surge capacity. Prophylaxis will best prevent absenteeism.
8	Pandemic social responders (e.g. critical infrastructure groups as defined in the vaccine priorities) and health care workers without direct patient contact.	Infrastructure groups that have impact on maintaining health, implementing a pandemic response, and maintaining societal functions.
9	Other outpatients	Includes others who develop influenza and do not fall within the above groups.
10	Highest risk outpatients	Prevents illness in the highest risk groups for hospitalization and death
11	Other healthcare workers with direct patient contact	Prevention would reduce absenteeism and preserve optimal function.

NOTE: This table may be markedly revised if an effective vaccine is available for administration.

*There is no data on the effectiveness of treatment at hospitalization. If drug supplies are limited, the priority of this group should be reassessed.

Procurement

The Centers for Disease Control and Prevention has included oseltamivir in the Strategic National Stockpile, although nationwide, demand for this antiviral is expected to exceed supplies in the event of widespread pandemic disease.

At present, neither PDPH nor CDC recommends that individual citizens maintain personal stockpiles of oseltamivir (Tamiflu). There are multiple reasons for this recommendation:

- The drug has uncertain effectiveness against any new pandemic strain;
- Limited supplies may be best used for containment overseas in light of the worldwide shortage, and for priority groups in the United States, particularly those individuals critical to maintain the healthcare system; and
- Inappropriate or widespread use may lead to resistance, and individuals may self-administer this medication for upper respiratory infections that are not due to influenza.

Distributing Antivirals to Priority Groups

As part of PDPH's Public Health Emergency Response Plan, PDPH is developing strategies to deliver antiviral medication to the entire population or selected groups, as the situation entails.

Monitoring and Data Collection

PDPH regularly communicates with health care providers and would include messages regarding the need to report adverse events. PDPH could report adverse events to CDC, either by fax or web-based, should CDC implement an adverse event tracking system. PDPH would collaborate with CDC and other partners to conduct studies on the efficacy of antiviral treatment, should the situation be warranted.

PDPH could use the KIDS immunization registry, described in the above section, to track antiviral distribution, adverse events, and vaccinated target groups.

Legal Preparedness

PDPH is collaborating with the Philadelphia City Solicitor to ensure that legal authorities are in place to facilitate implementation of plans. All relevant code and

statutes are under review, including the City of Philadelphia's "Regulations Governing the Control of Communicable and Non-Communicable Diseases and Conditions," relevant Pennsylvania Emergency Public Health Statutes, and recently enacted federal laws re: quarantine. Workers' compensation laws and statues are also under review.

Training

PDPH conducted a test of the operational plan for antiviral distribution in April 2005. One POD was established and approximately 1000 doses per hour of medication distributed. This plan addressed issues including storage and security.

During a pandemic, PDPH would provide training and educational materials to partners on the use of antiviral drugs.

Public Health Information

PDPH would use the HAN system to provide information to the medical community and would provide regular briefings to the media on the:

- Role of antiviral medication in responding to pandemic influenza;
- Need to prioritize use of limited supplies for treatment and prophylaxis;
- Rationale for the priority groups; and
- Importance of appropriate use to minimize development of drug resistance.

Investigational New Drug (IND) Use

IND provisions require strict inventory control, completion of signed informed consent from each person who receives the medication, and mandatory reporting of specified types of adverse events. PDPH would seek to implement the necessary requirements for use of an IND if unlicensed antiviral drugs were used.

Antivirals -- Pandemic Period

During this phase, PDPH will work with healthcare providers to:

- Prepare to activate plans for distributing and administering antiviral medication to persons in priority groups and then activate the plans;
- Review modifications, if any, to interim recommendations on antiviral prophylaxis in selected groups or circumstances;
- Accelerate training on appropriate use of antiviral drugs among public health staff and healthcare partners; and

- Work with other governmental and non-governmental organizations to ensure effective public health communications
- Provide healthcare partners with guidance on reporting specifications for tracking distribution, effectiveness, and safety of antiviral medication;
- Provide information to health professionals and the public on issues related to the availability and use of antiviral drugs during an influenza pandemic.

When Pandemic Influenza is Reported Abroad, or Sporadic Pandemic Influenza Cases are Reported in the United States, Without Evidence of Spread

During this phase, PDPH will:

- Recommend use of antiviral drugs in persons infected with novel strains of influenza and their contacts;
- Work with health care partners to consider providing antiviral prophylaxis to persons at highest risk for pandemic influenza;
- Meet with local partners to review the PDPH Public Health Emergency Response Plan and this annex to modify it as needed, particularly with regards to distribution to target groups;
- Notify the medical community about the plan and availability of antiviral drugs;
- Disseminate public health guidelines that encourage drug-use practices that minimize development of drug resistance;
- Provide the public with information; and
- Work with federal and state partners to monitor the safety and effectiveness of drugs and ensure that available antiviral medication are used in accordance with federal and PDPH recommendations.

When there is Limited Transmission of Pandemic Influenza in the United States

During this phase, PDPH will:

- Activate the PDPH plans to distribute antiviral medication to the targeted populations (refer to PDPH Public Health Emergency Response Plan, particularly the components related to delivering drugs to selected populations);
- Request antiviral drugs;
- Continue to work with health care partners to ensure appropriate use of antivirals in the medical management of cases and contacts;
- Assist hospitals in implementing procedures for early detection and treatment of influenza in health care workers; and
- Work with federal and state partners to begin monitoring the safety and effectiveness of drugs and ensure that available antiviral medications are used in accordance with federal and PDPH recommendations.

When there is Widespread Transmission of Pandemic Influenza in the United States

During this phase, PDPH will:

- Seek to ensure that those at highest risk of severe illness and death will be treated with antiviral drugs;
- Seek to maintain the delivery of healthcare and other essential critical services through early treatment and limited prophylaxis; and
- Work with federal and state partners to monitor the safety and effectiveness of drugs and ensure that available antiviral medications are used in accordance with federal and PDPH recommendations.

After a vaccine becomes available, antiviral drugs may be used to protect persons who have an inadequate vaccine response (e.g. the elderly and those with underlying immunosuppressive disease) as well as persons with contraindications to vaccination, such as anaphylactic hypersensitivity to eggs or other vaccine components.

Section III:

Preventing local disease transmission using a range of containment strategies

8. Community Disease Control and Prevention

Containment measures include activities that attempt to limit transmission as well as to slow transmission. There are few data from past epidemics to guide containment strategies. Preliminary mathematical modeling results suggest that travel restrictions would need to be 99% effective to delay introduction into a country by one or two months. It is unlikely that containment activities will be able to prevent transmission within the United States. Thus, the goals of PDPH containment activities during a pandemic are to slow the spread of disease early after introduction into the area and to limit the number of infected persons.

Containment measures begin with activities for individuals and move on, as needed, to community-based measures. Slowing transmission can be accomplished by:

- Activities directed at individuals:
    - For example: Isolation of patients, monitoring of their contacts, and quarantine.
- Activities directed at groups or entire communities:
    - For example: Cancellation of public gatherings, implementation of community-wide snow days.

Please also refer to Attachments 10 to 18):

- Principles of Modern Quarantine
- Recommendations for Quarantine
- Isolation and Quarantine Response Plan
- Evaluation of Homes and Facilities for Isolation and Quarantine
- Frequently Asked Questions about Quarantine

Community Containment -- Inter-pandemic and Pandemic Alert Periods

Graded Implementation of Individual and Community Isolation and Containment Measures

The following Table outlines measures that may be employed at different stages of a pandemic, as disease begins and then becomes more widespread. Depending on the specific circumstances of an epidemic, these steps may not necessarily be taken in sequential order.

Graded Implementation of Community Containment Measures	
Level of influenza activity	**Response**
No novel influenza strains of public health concern in global circulation	Preparedness planning
Limited novel influenza virus transmission abroad; all local cases are either imported or have clear epidemiologic links to other cases	Quarantine, monitoring and of close contacts; consider antiviral post-exposure if strain susceptible
Limited novel influenza virus transmission in the area, with either a small number of cases without clear epidemiologic links to other cases or with increased occurrence of influenza among their close contacts	Quarantine, monitoring of close contacts; consider antiviral post-exposure if strain susceptible
Sustained novel influenza virus transmission in the area, with a large number of cases without clear epidemiologic links to other cases; control measures aimed at individuals and groups appear to be effective	Focused measures to increase social distance; consider community-based measures
Sustained novel influenza activity in the area, with a large number of cases in persons without an identifiable epidemiologic link at the time of initial evaluation; control measures are believed to be ineffective	Community-level measures to increase social distance; consider snow days and community-wide quarantine
Decreases in the number of new cases, unlinked (or “unexpected”) cases, and generations of transmission	Quarantine of contacts
Transmission has been controlled or eliminated; no new cases reported	Active monitoring in high-risk populations; continue for 2-3 incubation periods after control or elimination of transmission.

PDPH's response will be graded based on the number of cases and exposed contacts. In the early stages of a pandemic, PDPH will make substantial efforts to limit the spread of disease, in the hope to delay the full epidemic, even if for one week, while a potential vaccine is being produced. Antiviral usage will be determined by both the availability of antiviral medications, and the susceptibility of the circulating strain to available medications.

The expected health impact on the population of Philadelphia is described below. This impact has been calculated using CDC's web based program and is based on a 35% attack rate, a total number of licensed and staff non-ICU beds of 4,913, a total number of licensed and staffed ICU beds of 898, and the ability to use 500 ventilators.

- 8000 in-patient hospital admissions the first six weeks. With an average stay of 4 days, 32,000 extra patient days.
- 1,750 total excess deaths the first six weeks.

Using other data, Philadelphia may expect up to
- 227,800 outpatient visits and
- 560,000 ill persons.

PDPH proposes the following graded response:

Number of Cases	Isolation / Care Issues	Quarantine Issues
<50 ill persons	• Hospitalization with isolation	• Voluntary, home quarantine when possible; Alternative: cohort close contacts in a suitable city residential facility* for a 10 day observation period, up to a maximum of 500 persons
50 – 500 ill persons	• Hospitalization with isolation	• Voluntary, home quarantine when possible. Alternative: cohort close contacts in a suitable city residential facility* for a 10 day observation period, up to a maximum of 500 persons. NOTE: Ill and well persons would be separated so that disease could not be transmitted.
>500 ill persons	1. Severely Ill: Hospitalization	1. Contact with Special Circumstances (live

	2. Ill / Prostate with Special Circumstances (live alone, live in dorm, tourist, homeless, etc): Provide residence in a city facility* 3. Ill with Suitable Residence*: Home based care	alone, live in dorm, tourist, homeless, etc): Home-based quarantine if possible; provide residence in a city facility* when home quarantine not an option 2. Contact with Suitable Residence*: Home based quarantine

*Please refer to Attachment 17: Evaluation of Homes and Facilities for Isolation and Quarantine

PDPH has developed protocols and procedures for exercising and enforcing legal authorities for isolation and quarantine. Draft health and court orders have been developed, and planning with Philadelphia's Office of Emergency Shelter Services has begun to identify appropriate containment facilities, should they be necessary. PDPH will monitor individuals who are in quarantine situations to ensure early recognition of disease symptoms. A staff surge-plan is in place within PDPH, disease investigators from throughout the department, and when necessary, healthcare professional volunteers from the Medical Reserve Corps. The Isolation and Quarantine Response Plan is Attachment 12, with related documents in Attachments 13 to 16.

In addition, planning with the Office of Behavioral Health, Voluntary Organizations Active in Disaster (VOAD), the American Red Cross, and other community-based social and human service organizations has begun, to identify ways to support compliance with home quarantine orders and other social-distancing strategies that would require prolonged home-based sheltering periods. PDPH is working with these groups to:

- Develop tools and mechanisms to prevent stigmatization and provide mental health services to persons in isolation or quarantine, as well as to family members of affected persons and other community members

- Establish procedures for delivering medical care, food, and services to persons in isolation or quarantine. These efforts include the special needs of children and persons with disabilities.

- Develop protocols for monitoring quarantined patients

Community Preparedness for Implementation of Pandemic Influenza Containment Measures

Planning for Disease Control and Containment

- PDPH will work with the Pandemic Influenza Coordinating Committee to ensure that traditional (e.g. health care, fire, police) and non-traditional partners (e.g. transportation workers) are involved with planning and exercises of the plan.

Planning for Influenza Hotlines

Through media and website information, PDPH will urge ill persons to call the PDPH Influenza hotline that will provide information to the public. Depending on staffing capacity (especially as staff may be ill during the pandemic), the telephone call line will provide information through an automated system or with staff using scripted questions and answers. This influenza hotline may be used to collect information on the number of new cases, if ill persons are urged to call in, or to track the health of persons in quarantine.

Public Understanding of Disease Containment Measures

Public understanding of the dangers of pandemic influenza and the benefits of community-wide disease control practices, including social distancing measures, will enhance compliance with such recommendations. Pre-event educational campaigns can explain how individual action (e.g. strict compliance with respiratory hygiene, staying home when ill) and community efforts (e.g. implementation of snow days) can reduce disease transmission. Education campaigns would justify the criteria, justification, role, methodology, and duration of quarantine and how to support persons in quarantine.

Management of Patients Infected with Novel Strains of Influenza and Their Contacts

Patient Isolation

Patients will be admitted to a hospital if clinically indicated, if public health needs require it, or if isolation at home or in a community facility cannot be achieved safely and effectively. PDPH will advise healthcare providers on additional steps that may be taken, before or after laboratory tests become available. If the EMS system is used to transport patients, EMS staff should wear PPE (please refer to section 4, Infection Control).

Management of Close Contacts

PDPH will make decisions on whether to trace a patient's contacts and how to manage them will be made on a case-by-case basis, based on:

- Likelihood that the suspected case is due to a novel influenza strain (based on symptoms and travel history, if laboratory results are unavailable yet);
- Likelihood that the causative virus is transmitted from person-to-person with a moderate or high efficiency;
- Feasibility of conducting contact-tracing given the short incubation period.

A patient's close contacts may include family, friends, work colleagues, fellow passengers, and healthcare providers. Management of contacts might include passive or active monitoring without activity restrictions and / or quarantine at home or in a designated facility. In the Pandemic Alert Period, quarantine of contacts should be implemented only when there is a high probability that the ill patient is infected with a novel influenza strain that may be transmitted to others.

PDPH will monitor quarantined contacts at least once a day, by phone or in person, to assess symptoms and address any needs. Quarantine may be lifted as soon as the exposed contact has remained without signs and symptoms of disease for a complete incubation period. Since the clinical behavior of a novel influenza virus is likely to differ from that of the usual influenza viruses, quarantine will be initially begun at 10 days. PDPH will be prepared to adjust the quarantine period as more is known about the virus. In addition, post-exposure prophylaxis with antiviral medications will be considered, pending availability of medications and the susceptibility of the circulating strain of influenza.

Data Collection

Based on the stage of the epidemic, PDPH will collect standardized information on cases and contacts. Particularly in the early stage when infection is limited to a small number of cases and contacts, the following data may be collected:

- Number of contacts identified per case
- Information on each contact:
    - Relationship to the case-patient
    - Nature and time of exposure
    - Whether the contact was vaccinated or on antiviral prophylaxis
    - Underlying medical conditions
- Number of contacts (including any in quarantine) that become ill
- Number of days between onset of symptoms and reporting to health officials

These data will guide decision-making on whether to implement more stringent containment measures.

Containment of small clusters of infection with novel strains of influenza

To contain small clusters of infection with novel strains of influenza (during the later Pandemic Alert phases or when cases are first introduced into the U.S), PDPH might use community-based control measures that include targeted chemoprophylaxis and early detection of new cases by use of influenza hotlines and clinics. These

approaches may be implemented in small, well-defined settings. They are not likely to be useful once a pandemic is underway.

Targeted chemoprophylaxis of disease clusters

This intervention includes investigation of disease clusters, administration of antiviral treatment to persons with confirmed or suspected pandemic influenza, and provision of drug prophylaxis to all likely exposed persons in the affected community. CDC will assist PDPH in these efforts, as needed.

Targeted chemoprophylaxis also requires intensive disease surveillance to ensure coverage of the entire affected area, effective communication with the affected community, and rapid distribution and administration of antiviral drugs because they are most effective when provided within 48 hours of symptom onset or when used as post-exposure prophylaxis before onset of illness

Influenza Hotlines

During the later phases of a Pandemic Alert, if Philadelphia experiences a disease cluster, a combination of self-assessment and establishment of influenza hotlines may be effective in detecting potential influenza disease and conducting “community triage” to direct persons with symptoms to the appropriate site and level of care. This intervention may include asking all members of the affected community to monitor their symptoms in accordance with instructions from PDPH and CDC. For example, all members of the community might be asked to take their temperature (and the temperature of their household members) once or twice daily. Persons with temperatures above a certain level may be asked to either stay home and phone a designated influenza hotline for a medical referral, or proceed to a neighborhood influenza clinic established by local public health and healthcare authorities.

Community Containment -- Pandemic Periods

During the Pandemic Phase, control measures such as contact tracing and quarantine applied to individuals may have limited impact in decreasing influenza transmission. In addition, individual-level measures may no longer be feasible. During this stage, PDPH will consider measures that decrease social contact within groups or whole communities (e.g., self-shielding, cancellation of public events, snow days) and measures that individuals can take personally to decrease their risk of infection

Containment measures for individuals

Patient isolation

A patient with a suspected or confirmed case of pandemic influenza should be separated from persons who are well, using infection control measures described in Part 4**.** If a surge in patients overwhelms healthcare capacity or if home isolation is not feasible, PDPH may need to use alternative facilities for isolation of influenza patients. (Please refer to Attachment 11, Evaluation of Homes and Facilities for Isolation and Quarantine.)

Management of contacts

Contact tracing, contact monitoring, and quarantine of close contacts may be effective only in special situations during the earliest stages of a pandemic. Because the usefulness and feasibility of these measures will be limited once the pandemic has started to spread, PDPH will consider implementing community-based measures that reduce disease transmission by increasing social distance.

Containment measures for communities

If disease transmission in the community is significant and sustained, PDPH will consider implementing community-based containment measures, and will take into account CDC recommendations. Community-based containment measures can be grouped into two broad categories: measures that affect groups of exposed or at-risk persons and measures that affect entire communities.

The following Table lists quantifiable factors that may influence decisions on where and when to impose community-based containment measures. Social considerations—including levels of community cooperation and mobility—will also inform local decision-making.

Potential parameters	Variable
Cases and contacts	Number of cases (absolute or estimated) Rate of incident cases Number of hospitalized cases Number and percentage of cases with no identified epidemiologic link Morbidity (including disease severity) and mortality Number of contacts under surveillance and/or quarantine
Healthcare resources	Hospital/facility bed capacity Staff resources Patient/staff ratio Number of ill or absent staff members Availability of specifically trained specialists and ancillary staff members Availability of ventilators Availability of other respiratory equipment Availability of personal protective equipment and other measures Availability of therapeutic medications (influenza and non-influenza specific)
Public health resources	Investigator to case and contact ratios Number of contacts under active surveillance Number of contacts under quarantine Ability to rapidly trace contacts (number of untraced/interviewed contacts) Ability to implement and monitor quarantine (staff member to contact ratio) Ability to provide essential services (food, water, etc.)
Community cooperation, mobility, and compliance	Degree of compliance with voluntary individual isolation Degree of compliance with active surveillance and voluntary individual quarantine Degree of movement out of the community Degree of compliance with community-containment measures

Measures that affect groups of exposed or at-risk persons

Measures that affect groups of exposed or at-risk persons include:

- Quarantine of groups of exposed persons
- Containment measures that apply to use of specific sites or buildings

These measures should be considered when:
- There is limited disease transmission in the area.
- Most cases can be traced to contact with an earlier case or exposure to a known transmission setting (e.g., a school or workplace where a person has fallen ill).
- The intervention is likely to either significantly slow the spread of infection or to decrease the overall magnitude of an outbreak in the community.

Quarantine of groups of exposed persons

The purpose of quarantine is to reduce influenza transmission by separating exposed persons from others, monitoring exposed persons for symptoms, and providing medical care and infection control precautions as soon as symptoms are detected. Groups that might be quarantined include:
- Persons who might have been exposed to an influenza case
    - Via family members
    - At a public gathering
    - On an airplane or cruise ship or other closed conveyance (see also Section 9)
    - At their school or workplace
- Healthcare providers who work at a facility where influenza cases receive care

Group quarantine (like patient isolation) is optimally performed on a voluntary basis, in accordance with instructions of healthcare providers and health officials. However, PDPH has the basic legal authority to compel mandatory isolation and quarantine of individuals and groups when necessary to protect the public's health. See Attachments 11-16, on Recommendations for Quarantine. PDPH is working with the CDC Division of Quarantine, and representatives of Philadelphia International Airport including local staff in the Department of Customs and Border Protection to streamline protocols for the medical evaluation, screening, and possibly quarantine, of travelers.

Measures that apply to use of specific sites or buildings

Two ways of increasing social distance activity restrictions are to cancel events and close buildings or to restrict access to certain sites or buildings. These measures are sometimes called "focused measures to increase social distance." Depending on the situation, examples of cancellations and building closures might include:
- Cancellation of public events (concerts, sports events, movies, plays)
- Closure of recreational facilities (community swimming pools, youth clubs, gymnasiums)

Measures that affect communities

Measures that affect entire communities (including both exposed and non-exposed persons), include:
- Promotion of community-wide infection control measures (e.g., respiratory hygiene/cough etiquette)

- Snow days and self-shielding
- Closure of office buildings, shopping malls, schools, and public transportation (e.g., subways, buses)
- Widespread community quarantine (*cordon sanitaire*)

Measures that affect whole communities should be considered when:
- There is moderate to extensive disease transmission in the area.
- Many cases cannot be traced to contact with an earlier case or known exposure.
- Cases are increasing among contacts of influenza patients.
- There is a significant delay between the onset of symptoms and the isolation of cases because of the large number of ill persons.

As community outbreaks of pandemic influenza occur, community-wide infection control measures may decrease the overall magnitude of the outbreak. Community-based measures may also include school closures, snow days, and self-shielding.

a) Community-wide infection control measures

Throughout a pandemic, public health authorities will encourage all persons with signs and symptoms of a respiratory infection, regardless of presumed cause, to:
- Cover the nose/mouth when coughing or sneezing.
- Use tissues to contain respiratory secretions.
- Dispose of tissues in the nearest waste receptacle after use.
- Perform hand hygiene after contact with respiratory secretions and contaminated objects or materials.

Persons at high risk for complications of influenza will be advised 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.

Disposable surgical-type masks are used by healthcare workers taking care of ill patients to prevent splashes and droplets of potentially infectious material (e.g., from coughs and sneezes) from reaching the mucous membranes of the healthcare worker's nose or mouth. The benefit of wearing masks by well persons in public settings has not been established and is not recommended as a public health control measure at this time. In contrast to healthcare workers who necessarily have close contact with ill patients, the general public should try to avoid close contact with ill individuals.

Nevertheless, 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 be most important for persons who are at high risk for complications of influenza and those who are unable to avoid close contact with others or must travel for essential reasons such as seeking medical care. Public education should be provided on how to use and dispose of masks appropriately. In addition, this education should emphasize that mask use is not a substitute for social

distance or other personal protection measures (see also Part 4). Supply issues should be considered so that mask use in communities does not limit availability for healthcare settings where the importance and effectiveness of this use has been documented.

b) Snow days and self-shielding

Implementation of "snow days"—asking everyone to stay home—involves the entire community in a positive way, is acceptable to most people, and is relatively easy to implement. Snow days may be instituted for an initial 10-day period, with final decisions on duration based on an epidemiologic and social assessment of the situation. PDPH may wish to consider recommendations to the public for acquisition and storage of necessary provisions including type and quantity of supplies needed during snow days. Snow days can effectively reduce transmission without explicit activity restrictions (i.e., quarantine). Consideration should be given to personnel who maintain primary functions in the community (e.g., law enforcement personnel, transportation workers, utility workers [electricity, water, gas, telephone, sanitation]). Compliance with snow days might be enhanced by "self-shielding" behavior (i.e., many people may stay home even in the absence of an official snow day ["reverse quarantine"]).

c) Closure of office buildings, shopping malls, schools, and public transportation

Closure of office buildings, stores, schools, and public transportation systems may be feasible community containment measures during a pandemic. All of these have significant impact on the community and workforce, however, and careful consideration should be focused on their potential effectiveness, how they can most effectively be implemented, and how to maintain critical supplies and infrastructure while limiting community interaction. For example, when public transportation is cancelled, other modes of transportation must be provided for emergency medical services and medical evaluation.

Although data are limited, school closures may be effective in decreasing spread of influenza and reducing the overall magnitude of disease in a community. In addition, the risk of infection and illness among children is likely to be decreased, which would be particularly important if the pandemic strain causes significant morbidity and mortality among children. Children are known to be efficient transmitters of seasonal influenza and other respiratory illnesses. Anecdotal reports suggest that community influenza outbreaks may be limited by closing schools. Results of mathematical modeling also suggest a reduction of overall disease, especially when schools are closed early in the outbreak. During a Pandemic Period, parents should be encouraged to consider childcare arrangements that do not result in large gatherings of children outside the school setting.

d) Widespread community quarantine (cordon sanitaire)

In extreme circumstances, public heath officials may consider the use of widespread or community-wide quarantine, which is the most stringent and restrictive containment measure. Strictly speaking, "widespread community quarantine" is a misnomer, since "quarantine" refers to separation of exposed persons only and (unlike snow days) usually allows provision of services and support to affected persons. Like snow days, widespread community quarantine involves asking everyone to stay home. It differs from snow days in two respects: 1) It may involve a legally enforceable action, and 2) it restricts travel into or out of an area circumscribed by a real or virtual "sanitary barrier" or "*cordon sanitaire*" except to authorized persons, such as public heath or healthcare workers.

Implementation of this measure during a pandemic is unlikely to prevent the introduction or spread of pandemic disease except in uncommon or unique circumstances (such as in a community able to be completely self-sufficient). In many cases, other less restrictive approaches such as snow days can be implemented to slow disease spread or decrease its magnitude in a community. Because of this, *cordon sanitaire* is not recommended during a pandemic unless a community is in a setting where it is likely to be applied effectively and has planned with neighboring jurisdictions how such an approach would be implemented and maintained during a pandemic.

Scaling back community containment measures

The decision to discontinue community-level measures must balance the need to lift individual movement restrictions against community health and safety. Premature removal of containment strategies can increase the risk of additional transmission. Decisions should be based on evidence of improving local/regional control, such as:

- Consistent decrease in the number of confirmed cases
- Reduction in the number of probable and known cases
- Effective protective countermeasures are in place (e.g., high coverage with a pandemic influenza vaccine)

General recommendations are to withdraw the most stringent or disruptive measures first (e.g., widespread community quarantine, snow days, mass transit interruptions). In addition, factors such as widespread absenteeism and workforce depletion may result in school/facility/business closures, independent of any decisions related to risk of disease transmission.

PDPH decision matrix for implementation of containment measures

Community Group	Situation	PDPH Action
Schools	Evidence of widespread transmission in schools	Close schools Consider city-wide snow day
Businesses	Pandemic influenza detected in Philadelphia	PDPH provides information to businesses: • Businesses should encourage sick persons to stay at home and to work by telecommuting if possible • Businesses should abide by city-wide snow days • Businesses may institutionalize screening at the work site to identify infectious persons with fever and who likely have influenza
Critical City Infrastructure	Pandemic influenza detected in Philadelphia	PDPH provides information: • First responders, health care staff should use standard and droplet precautions as appropriate • Work sites may in institutionalize screening at the work site to identify infectious persons with fever and who likely have influenza
City sponsored mass gatherings	Pandemic influenza detected in Philadelphia	Cancel city sponsored mass gatherings

Exercising the Containment Strategies

During 2006, PDPH will exercise this plan's capacity to investigate and contain cases, including isolation and quarantine procedures, use of legal authorities, and the methods that will be used to provide support and service to those affected by the containment strategies. PDPH plans to conduct a tabletop exercise that will include our Command and Control staff.

9. Travel Related Risk of Disease

If an influenza pandemic begins outside the United States, public health authorities might screen inbound travelers from affected areas to decrease importation into the United States. If a pandemic begins or spreads in the United States, health authorities might screen outbound passengers to decrease exportation of disease. Early in a pandemic, health departments might also implement domestic travel related measures to slow spread in the United States.

Because some persons infected with influenza will still be in the incubation period, be shedding virus asymptomatically, 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.

Once a pandemic is underway, exit screening of travelers from affected areas ("source control") is likely to be more efficient than entry screening to identify ill travelers. Early in a pandemic, this intervention may decrease disease introductions into the U.S. Later, however, as pandemic disease spreads in communities, ongoing indigenous transmission will likely exceed new introductions and, therefore, federal authorities might modify or discontinue this strategy. 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.

Travel Related Risk -- Inter-pandemic and Pandemic Alert Periods

Preparedness for implementation of travel-related containment measures

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. 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.

The effective implementation of travel-related containment measures depends on advance planning, preparedness, and coordination at the state, local, federal and international levels.

Engaging community partners

PDPH, as part of its regular public heath emergency response planning and regular disease control activities, partners with:

- 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

In collaboration with these partners, PDPH:

- Develop plans for training, mobilizing, and deploying public health staff and other emergency workers.
- Conduct exercises and drills at ports of entry.
- Train healthcare workers and emergency responders in the use of personal protective equipment (PPE) (see Part 4).

PDPH is working with quarantine officers in CDC's Division of Quarantine, which is developing memoranda of agreement with hospitals near ports of entry that are equipped to isolate, evaluate, and manage suspected influenza patients (see Part 8) and with emergency medical services that can help perform on-site assessments of ill passengers and transport them to hospitals for evaluation.

Protocols for managing ill travelers at ports of entry: Philadelphia International Airport and Port:

PDPH is working with the CDC quarantine station based in New York City (JFK Airport) and local law enforcement officials to manage ill arriving passengers identified by airplane or cruise ship personnel. In the event that ill passengers are arriving, PDPH will:

- Meet flights with a reported ill passenger;
- Ensure the CDC quarantine station is notified, if not already done;
- Arrange for a medical assessment of the ill traveler and referral for evaluation and care;
- Separate the ill traveler from other passengers during the initial medical assessment. The Philadelphia International Airport has such facilities;

- Transport the ill traveler to a designated healthcare facility;
- Identify other ill passengers and separate them from passengers who are not sick;
- Transport and quarantine contacts, if necessary;
- Enforce isolation and quarantine, if necessary, when ill travelers or their contacts are uncooperative

CDC is working with partners in the travel industry to ensure that airplane and cruise ship personnel are familiar with:

- Case definitions (e.g., symptoms, travel history) for avian influenza A (H5N1) and other novel influenza strains of public health concern as they arise. CDC will provide additional and updated case definitions, as necessary, during the Pandemic Alert and Pandemic Periods.
- Actions to take and persons to contact at their home offices, local quarantine station, or CDC if they are concerned about a sick passenger who might have novel influenza

Quarantine preparedness at ports of entry

PDPH, in collaboration with the CDC, is working to identify quarantine facilities for housing passengers, crew, and emergency workers who may have been exposed to an ill traveler.

Facilities are being identified for:

- De-boarding of airline passengers, provision of information, medical screening, information collection to assist with monitoring and follow-up (staging area)
- 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

PDPH will arrange for persons in quarantine to receive food, behavioral support and other services as required.

Legal preparedness

The federal government is primarily responsible for preventing the introduction, transmission, and spread of communicable diseases from foreign countries into the U.S. State and local health authorities may also take measures, such as quarantine of ill travelers and their contacts, to prevent the spread of communicable diseases within their borders. PDPH has the primarily responsible for restricting travel within the City of Philadelphia 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, PDPH is working with state and federal health authorities to establish protocols and outline roles and responsibilities in advance of a public health emergency.

These include ensuring legal authorities and protocols for:

- Requirements for arrival screening and/or quarantine of international and domestic travelers
- Requirements for pre-departure screening of international and domestic travelers
- Prohibitions on travel by ill persons and their contacts
- Restrictions on use of mass transit systems
- Cancellation of nonessential travel

Health information for travelers

CDC's Travelers' Health website (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. 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 pandemic influenza spreads internationally and causes additional cases of human influenza.

PDPH may issue the following travel-related guidelines, for distribution to healthcare workers, the media and other partners:

- Travelers to areas with pandemic influenza activity should be immunized with the available trivalent human influenza vaccine, preferably at least two weeks before travel.
- Travelers should avoid all direct contact with poultry, including chickens, ducks, or geese that appear to be well, and farms or live-animal markets with poultry, and should avoid touching surfaces contaminated with poultry feces or secretions. (Note: this recommendation may be directed towards swine, as appropriate).
- Travelers should reduce possible exposure by practicing good hand hygiene with frequent hand washing or use of alcohol gels and by not ingesting undercooked eggs or food from poultry. (Note: This recommendation may be directed towards swine, as appropriate.)
- Hand washing should be reinforced when handling raw poultry (e.g., during cooking classes). . (Note: This recommendation may be directed towards swine, as appropriate.)
- Travelers should be advised to consult a health care provider if they become ill with fever and respiratory symptoms within 10 days of returning from an affected area.

Evaluation of travel-related cases of infection with novel strains of influenza

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. Information on the detection and identification of novel strains of influenza is provided in Section 1. Guidance on the clinical management of suspected cases of novel influenza is provided in Section 5.

Managing ill passengers

PDPH has developed protocols for the management of 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).

If an ill passenger with a suspected case of novel influenza is reported aboard an arriving airplane or cruise ship, PDPH will do the following:

- Notify all partners, including the CDC New York City Quarantine station (if not already notified), state and partner local authorities (i.e. police), and healthcare workers.
- 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 pandemic influenza or is suspicious for a novel influenza strain.
- Determine if a PDPH worker and/or CDC quarantine officer should meet the airplane or cruise ship to further evaluate the ill traveler.
- 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).

If the PDPH or CDC workers decide 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.

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.

Managing travel contacts

PDPH, in consultation with CDC, should decide how to manage an ill person's travel contacts on a case-by-case basis, taking into consideration the following factors:

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

- 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)
- Feasibility of tracing and monitoring travel contacts, as well as the patient's family members, workmates, schoolmates, and healthcare providers

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.

For retrospectively identified cases, if passengers and crew members cannot be traced within 48-72 hours of the presumed exposure, PDPH, in consultation with CDC, might consider other options (e.g., issue a public notice through the news media).

During the Pandemic Alert Phase, especially during the earlier phases, PDPH may, in consultation with officers from CDC's Division of Quarantine, 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**.

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. Each quarantined person should receive a preliminary medical assessment and should be interviewed to ascertain their travel and exposure histories.
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 (see Section 8).

Preventing the importation of infected birds and animals

State health departments assist federal agencies with responsibility for preventing the shipment of infected birds and animals into the United States. PDPH is collaborating with the State Health Department in the monitoring of live bird markets within the city limits.

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. 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 www.aphis.usda.gov/vs/ncie/importing.html.

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 www.cdc.gov/flu/avian/outbreaks/embargo.htm.

Travel Related Risk -- The Pandemic Period

Over the course of an influenza pandemic, state and PDPH health authorities might consider a range of travel-related control measures to decrease the spread of disease into the United States, out of the United States or within the United States. The following factors may be considered in developing policy:

- 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.

- 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.

HHS will promote an active process of engagement and discussion to help states and localities decide on which actions to take as the situation evolves. Because travel-related measures implemented by one jurisdiction will inevitably affect others, communication, collaboration, and especially coordination before any measures are implemented is crucial. PDPH is working closely with CDC's Division of Quarantine, particularly those officers located at JFK International Airport in New York City (whose jurisdiction extends to Philadelphia) to ensure that all actions taken to control pandemic influenza are fully informed and guided by their expertise and authority.

Travel-related containment measures

Travel into the United States

Early during an influenza pandemic that begins outside the United States, health authorities will heighten disease surveillance at U.S. airports and seaports and maintain close communication with WHO, foreign governments, and the airline industry. 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.

a) 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, PDPH and quarantine officers will do the following:

- 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.
- If the likelihood of pandemic influenza infection appears high, consider 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.

b) Travel health precautions and warnings

As the pandemic spreads from country to country, HHS will update country-specific travel notices and post them on the CDC Travelers' Health website (http://www.cdc.gov/travel/). Advisories might include: *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)
Travel Health Warnings that recommend postponement of nonessential travel

c) 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, HHS and state and PDPH might consider the following actions:

- Initiate enhanced disease surveillance at ports of entry.
- 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).
- Isolate arriving ill passengers, and quarantine their contacts as necessary.
- Collect information on all arriving passengers if notification is warranted (e.g., for antiviral administration, vaccination, or health monitoring).

d) Travel-related measures at later stages of a pandemic

If the situation worsens overseas and there is extensive and sustained transmission in other countries, PDPH, in partnership with HHS and the Pennsylvania State Health Department might consider these actions:

- Distribute travel health alert notices to passengers arriving from affected countries (i.e., countries for which health warnings have been issued).
- Post travel health alert notices in airports (e.g., on posters).
- Arrange with airline industry partners to show videos or public announcements about pandemic influenza on airplanes or cruise ships arriving from affected countries.
- Recommend canceling or limiting nonessential travel to affected countries.
- Collect information on all arriving passengers if notification is warranted (e.g., for antiviral administration, vaccination, or health monitoring).

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

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 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.

Travel out of the United States

If the level of influenza transmission in the United States presents a high risk for exportation of disease, PDPH in partnership with HHS and the Pennsylvania State Health Department will consider the following actions:

- Distribute travel health warnings to outbound passengers who live in or have visited affected parts of the United States.
- Recommend the cancellation of nonessential travel to other countries from ports of entry in affected parts of the United States.
- Implement pre-departure screening (e.g., temperature screening or visual screening) of outbound travelers.

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, PDPH in partnership with HHS and the Pennsylvania State Health Department might 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:

- Distributing travel health alert notices on domestic flights
- Isolating ill arriving passengers on domestic flights and quarantining passengers and crew, following protocols developed for international flights.
- Closing mass transit systems (e.g., buses and subways; see Section 8.)
- Closing interstate bus and train routes

The potential effectiveness of these measures and the feasibility of implementing them will be considered in decision-making.

DE-ESCALATION OF TRAVEL-RELATED CONTROL MEASURES

Decisions to de-escalate control measures related to international travel will be made in consultation with WHO.

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.

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.

Section IV:

Providing ongoing communication with the public (about the response effort, including the purpose and duration of containment measures)

10. Public Health Communications

PDPH has developed a "Public Information and Communications Plan" and the Division of Disease Control has further developed "Emergency Communications Protocols" as part of PDPH's overall public health emergency response plan. These communications plans are provided as an annex to the Emergency Response Plan.

For pandemic influenza, PDPH will follow this plan and ensure the following:

- When health risks are uncertain, as likely will be the case during an influenza pandemic, people need information about what is known and unknown, as well as interim guidance to formulate decisions to help protect their health and the health of others.

- Coordination of message development and release of information among federal, state, and PDPH health officials is critical to help avoid confusion that can undermine public trust, raise fear and anxiety, and impede response measures.

- Guidance to community members about how to protect themselves and their family members and colleagues is an essential component of crisis management. This guidance would be provided via information given to the media, health care professionals as well as on the PDPH website.

- Information provided to the public should be technically correct and succinct without seeming patronizing.

- Information presented during an influenza pandemic should minimize speculation, avoid over-interpretation of data, and refrain from overly confident assessments of investigations and control measures.

- An influenza pandemic will generate immediate, intense and sustained demand for information from the public, healthcare providers, policy makers, and news media. Healthcare workers and public health staff are likely to be involved in media relations and public health communications.

- Timely and transparent dissemination of accurate, science-based information about pandemic influenza and the progress of the response can build public trust and confidence.

Public Health Communications -- Inter-Pandemic and Pandemic Alert Periods

During this phase, PDPH focuses on preparedness planning and building flexible, sustainable communications networks (see Attachments 19 and 20).

Assessing communications capacity and needs

PDPH continually assesses and revises its communications plan. It is currently done on an annual basis. Recent planning and capacity building activities include:

- PDPH is reviewing procedures to help ensure that technology such as networks, servers and system backups are available. PDPH regularly tests these systems, such as using the Health Alert Network (HAN).
- PDPH maintains up-to-date communications contacts of key stakeholders and regularly sends information to these stakeholders in order to test our communication capacity.
- PDPH has identified communications professionals and media spokespersons, both on staff and in the community. PDPH is providing media risk communications training to its medical and epidemiology staff, and has familiarized key officials with available communications resources.
- PDPH has prepared basic communications resources, and is able to monitor the effectiveness of risk communication activities. PDPH also works with neighboring jurisdictions to disseminate information and ensure high-risk groups are appropriately targeted.
- PDPH has conducted a series of risk communication trainings during 2005 and 2006, and has provided training to staff likely to provide information to the media.
- PDPH maintains community communications resources, including web based information and hotlines. Telephone hotlines can provide taped information 24 hours a day, seven days a week.
- PDPH maintains redundant communication systems, including its Health Alert Network (HAN), urgent notifications through the Roam Secure Alert Network (RSAN), broadcast faxes and email systems, websites, hotlines, media spokespersons, and 800 MHz radios.

Conducting collaborative planning

PDPH routinely works with state and federal partners as well as the private sector in planning and disseminating messages. PDPH routinely works with the Delaware Valley Health Council in planning and disseminating information to hospitals. PDPH collaborates with universities and other local technical experts, and works closely with the Center City district that serves as a liaison to block captains, hotels and police, and plans to extend that collaboration to other neighborhood business districts. PDPH also works with Voluntary Organizations Active in Disaster (VOAD) and the American Red Cross as well as the Corporation for Aging and other partners

to reach vulnerable populations. In 2006, PDPH incorporated public health preparedness training into the local trainings made available by VOAD, to new Citizens Corps volunteers.

Developing and testing standard local procedures for disseminating information

Please refer to the PDPH "Public Information and Communications Plan," particularly Section IV, Disseminating the Message, and the Division of Disease Control's "Emergency Communications Protocols" sections on information dissemination to (1) the media / media relations, (2) hospitals and healthcare providers, (3) the public, and (4) other public health jurisdictions / agencies.

Developing, testing, and disseminating locally tailored inter-pandemic messages and materials

PDPH regularly disseminates messages and thus tests the capacity of its communications system. A draft communications message regarding pandemic influenza has been developed, including a draft press release.

Communications efforts should also take into account knowledge, attitudes and beliefs (KABs) that suggest how audiences understand and react to certain messages. Stigmatization and discrimination (e.g., being shunned as a perceived source of contagion) can be especially difficult and potentially dangerous during an infectious disease outbreak. PDPH is working with local universities who are conducting focus groups of community members to identify the types of preparedness messages that should be provided, and mechanisms for providing them during an emergency.

Experts at PDPH's Office of Behavioral Health will be consulted to assist with the delivery of messages to respond most appropriately to public concerns.

Refer to the PDPH Public Information and Communications Plan and the Division of Disease Control's "Emergency Communications Protocols" for information regarding existing organizational resources for communications, communications contact lists and databases, rumor control, communications channels, language resources, potential crisis communications center sites and special populations. PDPH will also draw upon communications information sources as well as local subject matter experts.

PDPH tests its plan on a regular basis. Most recently, PDPH implemented and tested its communications plan around an October 2005 mass influenza immunization clinic.

Public Health Communications -- Pandemic Period

During this Phase, PDPH will focus on ensuring that there is well-coordinated health communication to support public health interventions designed to help limit influenza-associated morbidity and mortality. Information should be accurate and disseminated rapidly, and PDPH will seek to coordinate information dissemination across jurisdictions, control rumors, and give realistic expectations about the progression of the pandemic.

Activating emergency communications plans

The "PDPH Public Information and Communications Plan" and the PDPH Division of Disease Control's "Emergency Communications Protocols" describe how these plans are activated.

Refining and delivering messages

PDPH will, in collaboration with federal and state partners:

- Provide regular information updates and offer opportunities to address questions (e.g., in partnership with news media, in public forums, and in printed or electronic messages).
- Distribute practical information, such as travelers' advisories, infection control measures, and information about potential priority distribution of antiviral medications and first-generation vaccines. Be prepared to immediately address questions related to initial case(s) and to provide guidance to the public about disease susceptibility, diagnosis, and management, as well as other topics.
- Reinforce and verify ways to help people protect themselves, their families, and others, including self-care information for psychological well-being.
- Address rumors and misinformation rapidly and persistently.
- Take steps to minimize stigmatization.

Providing timely, accurate information

As needed during a pandemic, PDPH will:

- Draw upon community subject-matter experts and spokespersons.
- Monitor the communications lists, materials, and databases to ensure they are accurate.
- Open accessible channels for advice to the public, including hotlines, and the CDC-INFO telephone line.
- Address inquiries and concerns, adapt communication strategies as needed. Some press statements and information for the public has been drafted in anticipation of events as they may potentially occur. (Please see Attachments 19-20)

Providing coordinated communications leadership across jurisdictional tiers (e.g., local, regional, state, and national)

Please refer to the Division of Disease Control's "Emergency Communications Protocol" section on information dissemination to other public health jurisdictions /agencies.

Promptly addressing rumors, misperceptions, stigmatization, and unrealistic expectations about the capacity of public and private health providers

Please refer to the Division of Disease Control's "Emergency Communications Protocol" section on guidelines for rumor control activities.

11. Workforce Support

Psychosocial Considerations and Information Needs

Introduction

A critical capacity for an effective response is the ability to address the inevitable psychosocial impact of pandemic influenza. The professional and research literature on the psychological impact of natural and manmade disasters, has little mention of the emotional, mental, and behavioral impact of pandemic influenza. While pandemics appear to occur in every century, we have much to learn as to how to prepare and respond to the psychosocial impact of a worldwide pandemic in the 21st Century. Certainly stress has become a known factor of modern life, and we have learned a great deal on how to minimize disaster-related stress, however, the prolonged and fluctuating stress that will accompany a pandemic in our communities will be unique and unlike anything experienced in the United States in the last half century. For this reason, it is critical that we put in motion a community learning process that enables us to be prepared for the psychological impact of a pandemic that will likely persist over several years.

Whereas past epidemic and disasters have generally not personally touched the majority of health care providers, pandemic influenza is expected to impact the system beyond the typical stress that has been associated with past crises and disasters, as staff will also have family members that are vulnerable to contracting the disease throughout the duration of the pandemic. The combination of both professional and family stresses will contribute to behavioral health reactions that will affect the ability of health care providers to perform their duties. This pandemic may last as long as 24 months. The fact that the pandemic will come in waves will very likely produce cumulative stress that accelerates performance impairment as the prolonged resurgence of infections and illness over the 24 months repeatedly occurs among health care providers.

Desired Outcomes

The Philadelphia Department of Behavioral Health and Mental Retardation Services (DBH/MRS) will take the lead in developing the psychosocial support module of the current plan. This will be done in partnership with mental health experts in the public and private sectors, as well as with the leadership of the Philadelphia Department of Public Health. Desired outcomes of this module are:

1. Philadelphia healthcare workers will be have the necessary knowledge and preparation to maintain their own psychological resilience during a prolonged influenza pandemic, including how to insure the emotional and psychological resilience of their families and other loved ones.
2. Philadelphia health care workers, mental health workers, and their families will have the necessary knowledge, tools, and intervention strategies to respond to their own and others' (families, clients, community members) psychological needs during a prolonged influenza pandemic.

3. Community members and organizations will have the necessary knowledge, tools, and response strategies to address their own and others (families, employees, neighbors) psychological and emotional needs during a prolonged influenza pandemic.

Planning Assumptions

1. A pandemic will result in significant psychological reactions in the general community, and will have a greater impact on healthcare workers. Individuals with pre-existing health and behavioral health conditions may also have higher rates of psychological disturbance during a pandemic. Studies of the impact of individuals isolated/quarantined for infectious diseases suggests that up to 30% of those exposed may develop persistent symptoms of depression and PTSD[1] (Post Traumatic Stress Disorder).

2. Increased length of time spent in isolation/quarantine (at home or in medical settings) has been associated with increased symptoms of PTSD. This finding suggests that isolation/quarantine itself, independent of acquaintance with or exposure to someone with illness, may be perceived as a personalized trauma.[2] Thus, it is assumed that there will be significant psychological

[1] PTSD is an anxiety disorder characterized by avoiding stimuli associated with a traumatic event, re-experiencing the trauma, and hyper-arousal, such as increased vigilance. This disorder may develop after exposure to traumatic events that involve a life-threatening component, and a person's vulnerability to the development of PTSD can be increased if the trauma is perceived to be a personal assault.

[2] Hawryluck L, Gold WL, Robinson S, Pogorski S, Galea S, Styra R. SARS control and psychological effects of quarantine, Toronto, Canada. Emerg Infect Dis. 2004;10:1206-12.

distress experienced throughout Philadelphia in the event of pandemic influenza.

3. The DBH/MRS and behavioral health providers from the private and public sectors will have limited ability to mitigate the stress response that the entire community will endure, such as pervasive fear and the experience of helplessness, anxiety and grief.

4. Strategies to prepare and address psychological stress reactions among healthcare workers must be a priority in order to maximize the effectiveness of this group's response to a community-wide health crisis.

5. The most important tools we have are information about psychological reactions to prolonged stress exposure for various groups; remedial actions that can be employed to alleviate stress reactions; and "psychological inoculation" that emphasizes basic human resiliency and the ability of human beings to endure and overcome extreme and prolonged adversity.

Target Groups and Approaches

Our challenge during pandemic alert and pandemic periods is to disseminate information and to provide support to our target groups, to plan and rehearse various scenarios, and ultimately to engage and put into play the knowledge we have acquired. Early education incorporated into a strong prevention strategy is the best approach, from a mental as well as physical health perspective, to assist individuals in coping. Public knowledge about the seriousness of the pandemic, that includes a variety of the likely concrete scenarios with behavioral strategies to minimize psychological and emotional impact, will provide those affected with the psychosocial tools they will need to cope with the extreme stress that will surely accompany the pandemic experience.

As initial work, the DBH/MRS will develop and distribute general education material providing information and strategies for taking positive steps to psychologically prepare for the pandemic. This includes information about normal stress, how to recognize anticipatory stress, and how to reduce concerns and worries about a pandemic by becoming informed of how a pandemic is likely to unfold. In addition, specific training, educational materials and intervention strategies will be developed for three specific groups for implementation during alert and pandemic phases. Those target groups are:

1. Healthcare Providers and Their Families: Addressing and alleviating the accumulated stress experienced by healthcare providers, particularly when there are not enough responders over the two-year pandemic period, will be the highest priority of this initiative. DBH/MRS will develop specific educational and intervention strategies to address the anticipated psychological responses that health care providers will experience in both the alert and the pandemic periods. These strategies will need to be developed in

collaboration with the PDPH staff in order to be aligned with likely simulations of the course of the pandemic. An essential component of the set of tools and interventions designed for this group is the education and preparation of the families of healthcare providers in order to minimize the conflict and pulls of family and professional obligations. It will be essential, given the expected duration of this pandemic that professionals and their families are made aware through conjoint and separate education strategies of the potential dilemmas they will face.

2. Current and New Behavioral Health Consumers: The DBH/MRS offers a variety of services to approximately 75,000 individuals with behavioral health issues of all ages each year through a broad range of contracted services. Continuity of essential behavioral health care for current consumers, and those with new serious behavioral illnesses will be an additional priority. DBH/MRS will develop specialized educational materials in multiple languages, along with specific direct interventions (warm line[3], crisis response, medication management, group support, telepsychiatry, and telecounseling, etc.) that will be necessary during a pandemic. These materials and specific pandemic-related interventions will be incorporated into the DBH/MRS Continuity of Operations Plan (COOP). This set of training curricula, educational tools and interventions will also be modeled to various likely scenarios expected with the pandemic and must take into consideration the possibility of a significantly reduced or homebound workforce.

3. General Community: The DBH/MRS will design and disseminate educational materials and training modules on community and neighborhood-based intervention strategies for the general community, businesses and organizations during the alert and pandemic periods. The information and suggested interventions will be based on self-help strategies that can be employed by lay community members so that they can provide emotional and psychological support to those in distress when professional medical and psychological support are not available.

The primary partners responsible for this module include the Philadelphia Department of Behavioral Health and Mental Retardation Services, who will involve mental health providers, and the Philadelphia Department of Public Health, who will involve healthcare providers in the public and private sector. A thoroughly trained mental health network will be established to monitor reactions to the Pandemic Influenza, the effectiveness of psychosocial services, and to make recommendations for new psychosocial strategies to be employed. The following outlines specific work objectives to be completed in this module.

[3] Warm line refers to non-emergency advice and counseling telephone services that are available to various populations. In this case, specific warm lines would be made available to current mental health clients of the system.

Workforce Support -- Pandemic Alert Period

Administrative Readiness Plan

The DBH/MRS will identify and fulfill all preparatory activities to establish the organizational infrastructure to support this plan within the DBH/MRS. This will include the following steps:

1. Train all mental health staff, including contract agency staff on the physical and mental health aspects of the influenza pandemic. Development of training curricula and handouts to be completed upon approval of funding and coordinated with other training modules included in this plan.
2. Update DBH/MRS Continuity of Operations Plan and development of a supplement that addresses the activities outlined in this plan (Pandemic Influenza).
3. Prepare request for funding for response activities.
4. Establish and train a Mental Health Pandemic Readiness and Response Network of public and private providers to plan for, respond to, and monitor psychosocial reactions to the pandemic.
5. Modify DBH/MRS contracts requiring provider planning for and participation in community psychosocial response to a pandemic and other disasters.
6. Train community mental health professionals, other agency and department staff, in collaboration with Red Cross and other community organizations, to assist in the community response.
7. Develop culturally competent, accessible, age specific mental health educational materials in as many languages as possible to be used for general community education efforts.
8. Post all educational materials on the DBH/MRS Web site with established links to other pandemic-related websites.
9. Develop an implementation plan to set up and operate #800 warm lines on short notice in collaboration with other pandemic response partners.

Health Care Provider Education and Intervention Development

The DBH/MRS will provide training to administrators, managers, and supervisors of health care providers through provision of psychosocial support services. This will include the following steps:

1. Establish a workforce resilience program, in conjunction with health care provider agencies (such as hospitals and clinics). This program will be designed to prepare health care providers to cope with and recover from the social and psychological challenges of providing care in the event of a pandemic. Specific training curricula will be developed for the Alert Period and a calendar of trainings will be established. Particular attention will be given to “train the trainers” and to provide a Healthcare Provider Psychological Readiness Tool Kit so that health care provider systems will be

able to provide their own training and educational materials to their employees. Specific materials will be developed on following topic areas:

a. Supervisory strategies for maintaining a supportive work environment during a sustained epidemic period.
b. Educational materials on the prolonged emotional responses they may experience or observe in colleagues and families during the influenza pandemic.
c. Written materials to assist staff that have child-care or eldercare responsibilities or other special needs that might affect their ability to work during a pandemic.

2. Prepare workforce support training and materials. This training will include both didactic instruction and informational brochures covering the following:

a. Normal behavior and psychological reactions to traumatic incidents and
stress.
b. Symptoms of stress that may be experienced during or after a traumatic incident.
c. Post Traumatic Stress Disorder (PTSD): what are the signs and symptoms.
d. Referring occupational workers for assessment and treatment.
e. Normal reactions to a traumatic incident and the course.
f. Problematic Stress Responses.
g. Symptoms of Acute Stress Disorder (ASD).
h. Associated Disorders

i. Depression
ii. Substance Abuse
iii. Panic Disorder
iv. Obsessive-Compulsive Disorder
v. Sexual Dysfunction
vi. Eating Disorders
vii. Suicidal Ideation

i. Bereavement and bereavement complications.
j. Hyper-arousal signs and symptoms (e.g. agitation, sensory overload)

i. Effective arousal management
ii. Learning adaptive measures to manage arousal symptoms
iii. Daily relaxation and exercise.

k. Psychological First Aid and Crisis Counseling
l. Informational Handouts.

Family Members of Health Care Providers Education and Intervention Development

As mentioned, a prolonged pandemic may affect healthcare workers and their families over many months. In order to prepare families for this eventuality, special training and educational materials will be developed and will include the following steps:

1. Design specific training for healthcare workers, spouses and children.
2. Develop a **Family Stress and Emotional Care Kit** to include:

    a. Fact sheets regarding stress reactions among all ages
    b. Phone trees for peer family support
    c. Instructions for developing family support plans
    d. Phone lists of key neighborhood and family supports
    e. Self-help strategies for families with young children
    f. Behavioral health consultation phone and support services
    g. Linkage to available psychiatric and specialty mental health services.

Current Behavioral Health Consumer Service Continuity Plan

The DBH/MRS will provide comprehensive health educational information about the pandemic influenza, including prevention strategies, methods for staying healthy, and medical treatment and self-care if one is infected and seeking assistance. Through their regular contacts with the consumers, behavioral health staff and those of contract agencies will assist clients to prepare in the event they (the clients) are impacted by the pandemic influenza, and in the event that behavioral health services are severely curtailed due to worker absences or diversion to other crisis activities. **Self Care Packets** will be developed in collaboration with, and be distributed to consumers and will include:

1. Fact sheets on signs and symptoms of stress reactions and PTSD
2. Phone list of key mental health contacts
3. Phone lists of self-help support
4. Phone lists of family and friends
5. Pre-written clinical self-care plan in the event of client being homebound or closure of behavioral health clinic.

General Community Education and Self-Help Intervention Development

The DBH/MRS, in coordination with the Department of Public and the Public Information Officers, will conduct a broad multilingual, multicultural community education campaign that will inform the public about the pandemic influenza and

how to prepare mentally, physically and practically. Behavioral health providers will facilitate an informed community that is preparing to support its members during the pandemic through development of community and neighborhood readiness kits. The following activities will be included:

1. Train volunteers to provide community presentations on normal stress reactions to the pandemic and how to reduce the negative impact these reactions have on daily functioning.
2. Identify referral sources in the community that can provide support and guidance for residents. These sectors include the faith community, community organizations, schools, the general and ethnic media, and other resources to be identified. These groups will reach out to the community, particularly the home bound to provide education, support, and links to resources.

Workforce Support -- Pandemic Period
Health Care Provider Interventions

DBH/MRS will train and support Health Care Providers to manage emotional stress and family issues, and to build coping skills and resilience through supportive mental health techniques and communication tools that include:

1. Written educational materials.
2. Availability of informal drop-in support groups at work sites to the extent possible. Information on management of agitated or desperate persons.
3. Telephone and in-person consultation regarding personal and family issues to the extent possible.
4. Guidance to distinguish between psychiatric disorders and common reactions to stress and trauma; and how to deal with the worried well with instructions for "just-in time" training.
5. Information on dealing with possible stigmatization related to their role in the pandemic response.
6. As feasible, on-site consultation in emergency rooms and community care sites to assist in alleviating the distress among the community and first responders.
7. Crisis Counseling, support, and referral to behavioral health services as required.
8. Assignment of managers and supervisors of healthcare providers to:

    a. Support responders in the field by maintaining frequent contact and providing mutual help in coping with daily stresses; providing access to activities that help stress, and referring to behavioral services as requested.
    b. Monitoring the occupational safety, health, and psychosocial well-being of central operations personnel and establishing rest and recuperation sites.

c. Enlisting employee assistance programs to provide family members with instrumental support (e.g., assistance obtaining food and medicine) and psychosocial support (e.g., bereavement counseling).

9. Post-deployment/assignment of supervisors and managers of healthcare providers may:

a. Provide on-going access to post-emergency psychosocial support services for responders and their families.
b. Conduct an on-going evaluation of the after-effects of the pandemic on the health, morale, and productivity of healthcare providers.

Mental Health Consumer and Family Intervention

Current behavioral health clients will receive age-appropriate support services in relation to the pandemic influenza from their regular behavioral health service provider. The DBH/MRS will:

1. Identify and address system barriers to facilitate consumer access to most appropriate levels of behavioral health treatment available when psychiatric services are curtailed due to workforce shortages, or reduction of staff.
2. Implement self-help phone trees and peer support plans.
3. Implement psychiatric and pharmacy phone consultation service.
4. Implement counseling warm line.
5. Maintain updated listings of available emergency services options.
6. Coordinate with pandemic response partners to put in place specialized services for behavioral health consumers, such as in health care centers, medical services, etc.

Family Members of Health Care Providers

Mental health providers will assist family members heavily impacted by the stress of the pandemic influenza in order to support the health care providers in performing vital and critical emergency health care function through:

1. Provide written information on coping with stress.
2. Establish informal talk groups and volunteer peer support warm lines specifically for health care workers. Provide information for dealing with possible stigmatization related to the health worker role in the pandemic response.
3. Implement phone consultation with child behavioral health specialists
4. Establish psychiatric and medical telephone consultation and web-based resources in coordination with pandemic response partners.

General Community Interventions

The information/outreach will be directed to both the general public and populations at risk for acute stress reactions to the pandemic. Activities will include:

1. Establish a volunteer multilingual warm line for community individuals in need of support, particularly for individuals who are isolated and homebound.
2. As required and permitted by resources, make home visits to the homes of ill homebound individuals at risk for acute negative reactions to the pandemic.
3. Distribute mental health educational materials to police, fire, and community outreach workers describing the acute reactions that are anticipated from the pandemic.
4. Establish internet based consultation, information and FAQs in coordination with pandemic response partners.

Administrative Response

DBH/MRS will provide the following support necessary to successfully implement the psychosocial activities in this plan in coordination with pandemic response partners:

1. Coordinate and deploy staff and volunteer resources in response to pandemic influenza.
2. Monitor reactions to the pandemic influenza and the effectiveness of psychosocial strategies, with the participation of other pandemic response partners.
3. Make necessary changes in services to ensure maximum effectiveness of the psychosocial activities.
4. Coordinate and participate in planning efforts with the PDPH and Emergency Management Agency (EMA).

Psychosocial Support Tools (to be developed)

Tool 1 -Informational handouts for various populations (general community, health care workers/families, mental health workers, consumers and their families).

Tool 2 - Psychological Preparedness Tool Kits for various populations (general community, health care workers/families, behavioral health workers, consumers and their families).

Tool 3 - Web-based FAQ's and Resource Information.

Tool 4 - Training Curricula for various target population trainings.

Tool 5 - Train the Trainer curricula and handouts.

Tool 6 - Warm Line Implementation Kits to instruct on the implementation of various resources and advise lines for different populations.

ATTACHMENTS

Attachment 1 – Surveillance/Pandemic Influenza Outbreak Investigation Protocol

In the event of confirmed sustained human-to-human transmission of human **influenza A (H5) or other pandemic influenza strain in North America**, the Philadelphia Department of Public Health, Division of Disease Control (PDPH-DDC) has endeavored to create a protocol that will provide guidance in the evaluation of suspect pandemic influenza cases and outbreaks reported to PDPH-DDC as well as the orchestration of case and outbreak investigations during the early phases of the pandemic period. As the pandemic influenza strain becomes highly prevalent in the community, PDPH-DDC will shift focus from active case finding to public health actions geared towards general prevention and medical management of cases.

Early Pandemic Period

In the early pandemic period, the objectives of case/outbreak investigations are to:

- Identify all contacts of suspected cases
- **Identify sources of infection**
- Collect enough information to isolate all cases and potential sources of the pandemic strain
- Institute appropriate infection control measures to arrest the spread of the pandemic strain

I. Case Reporting /Identification by DDC

Notification of potential pandemic influenza case or outbreak may arrive through various methods: Phone call, Electronic mail, Fax, State of Pennsylvania-National Electronic Disease Surveillance System (PA-NEDSS) or syndromic surveillance detection.

A) Collect information for suspect pandemic influenza cases/outbreaks using

1) Notifiable Case Report Form (Appendix I)
If reporter is a laboratorian (or similar roles with little or no demographic/epidemiological information available)

2) Human Influenza A (H5) Domestic Case Screening Form* (Appendix II)
If reporter is a health care worker of any type who would have the necessary information to complete the form.

*For Long Term Care (LTC) Facilities-include a copy of the Influenza Line List and Guidelines for Prevention and Control of Influenza in Long Term Care Facilities. (Appendix III)

B) If the initial reporter is not knowledgeable about all cases, then conduct initial follow-up to obtain complete information:

1) Demographic information
2) Symptoms and onset dates/times
3) Number of people affected
4) Possible exposures
5) Hospitalizations and/or death
6) Laboratory Findings- where & when
7) Risk Factors

C) Disseminate initial information via email to appropriate DDC staff

1) Create summary of the situation with the initial follow-up information
2) Distribute within the Philadelphia Department of Public Health -DDC

II. Coordination of Case/Outbreak Investigation Meeting

An initial outbreak meeting should be convened immediately. The meeting will include appropriate DDC staff from all relevant programs (ACD, Immunization, Epidemiology and Emergency Preparedness)

Meeting should include:

1) Summary of initial information gathered thus far
   Number of cases affected
   Location of cases (hospital, LTC, private home etc)
   Clinical description
   Laboratory finding including tests requested
   Preliminary recommendations (if provided by recorder)

2) Identify involvement of other local, state, and federal agencies

3) Selection of clinical and epidemiological leadership
   a) Clinical-TBD by ACD section
   b) Epidemiology- TBD by Epidemiology Unit Director
   c) Immunology-TBD Immunization Unit

4) Decisions regarding the follow –up actions determined by outbreak leader

Laboratory confirmation
Development of preliminary case definition
Further gathering of data from cases
Contact tracing
Case interview (s)
Isolation /quarantine recommendations
Vaccination Strategies-Targeted or "Ring" vs. Mass Vaccination
Prophylaxis/treatment recommendations (if required)
Specimen collection
Communication/coordination with other public health agencies (surrounding counties, PA DOH, surrounding states, CDC etc)
Communication with the Health Commissioner and public will be conducted by the Director of DDC. Contact Press officer Jeff Moran (215-685-5685)
Case-control or Cohort study
Other task assignments
Next meeting schedule

Outbreak Investigation Task List

1) Prepare for investigation

- Review scientific literature and other data sources e.g. Epi-X, pro-MED pertaining to suspected outbreak situation
- Gather appropriate materials or specimen kits if field visit is required (Long-Term Care Facility or shelter)
- Communicate/coordinate with other relevant local, State and Federal agencies as appropriate:
  _____PDPH laboratory

  _____ Medical Examiner's office (MEO)

  _____PA-Department of Health (PA-DOH)

  _____PA-Bureau of Laboratories (PA-BOL)

  _____Surrounding counties/state health departments

  _____Federal: Centers for Disease Control and Prevention (CDC)

2) Collect information to verify diagnosis

- Contact health care provider of cases to verify symptoms

_____Identify lab tests conducted
- Request lab results and for copies be sent to the health department

3) Active Case Finding

- Check with PA-BOL
- Call local emergency departments for any unusual increases in fever/flu syndrome
- Consult with Syndromic Surveillance Epidemiologist for cases and unusual trends
  _____Emergency Department (ED) Data
  _____Real time Outbreak and Disease Surveillance System-Over-the-Counter Drugs (RODS-OTC) Data
  _____Medical Examiner Office Reports

4) Complete Case Investigations

- Contact case for more information using standardized questionnaire
- Develop Influenza Database to capture mortality and morbidity
  _____Create an electronic line list with the assistance of Acute CD Epidemiologist

5) Obtain Clinical Specimens

- Specimens from suspect pandemic influenza outbreaks in LTC facilities or a similar institution will be collected by PDPH Division of Disease Control Disease Surveillance Investigators (DDC-DSI)
- DDC will be responsible for batching and delivering specimens to the PA-BOL
- Individual suspect pandemic influenza specimens will be handled per recommendations from PA-BOL and the CDC

6) Develop Initial Case Definition

- Update the working case definition to aid in identifying outbreak-associated cases based on current information
- Designate case classification parameters (i.e. Confirmed, Probable, Suspect)
- Adjust working case definition to reflect new information

7) Organize relevant case information to form an initial hypothesis

- Identify any potential epidemiological links among cases.
- Summarize line list data--demographically, geographically, and temporally

8) Implement Control Measures based on analysis/summary of epidemiological information

9) Communicate regularly with health care providers about

- Updates about status of pandemic
  _____Influenza morbidity and mortality
  _____Areas of high endemicity
- Infection control and clinical guidelines

Intrapandemic period and late pandemic period

In the intra-pandemic and late pandemic period, the objectives of case/outbreak investigations are to:

- **Monitor overall morbidity and mortality in the community**
- **Assess effectiveness of prevention and treatment guidelines**

III. Adjustment of PDPH-DDC Pandemic Influenza Activities

A) Continue to maintain electronic influenza database
B) Cease extensive case investigations
C) Provide adjusted prevention guidelines and treatment recommendations

Notifiable Disease Case Report *(Confidential)*	Philadelphia Department of Public Health Division of Disease Control Communicable Disease Control Program 500 S. Broad Street, Philadelphia, PA. 19146

Identification of Patient

Report Date *(Mo., Day, Yr.)*	Name *(Last, First, M.I.)*	Parent or caretaker (if applicable)

Address *(Number, Street, Apt #, City, Zip Code)*	Telephone (H) _____ (W)_____ (C) _____

DOB *(Mo., Day, Yr.)*	Age	Sex ☐ M ☐ F	Occupation

Name of Employer or School	Address *(Number, Street, City, Zip Code)*

Medical Information

Disease or Condition	Date of Onset *(Mo., Day, Yr.)* *(If animal bite , Date it Occurred)*	Diagnosis (check one) ☐ Clinical ☐ Lab confirmed	Fatal (check one) ☐ Yes ☐ No

Chief Symptoms / Complaints	Suspected source of Infection (if known)

If Case Hospitalized *(Name of Hospital)*	Admission Date	Discharge Date

Laboratory Information If Pertinent *(Attach Copies If Applicable)*

Name of Tests Done	Site/Source	Results	Dates Done

Animal Exposures

Parts of Body Bitten	Type of Animal	Breed of Animal	Current Location Of Animal *(Indicate if available for testing)*

Name of Owner	Address of Owner *(Number, Street, Apt #, City, Zip Code)*

Reporter Information

Name of Person Reporting Case	Reporter ☐ ICP ☐ ED ☐ Other_____	Phone

Reporting Institution	Address (Number, Street, City, Zip Code)

DO NOT WRITE IN AREA BELOW - FOR DEPARTMENT USE

Name *(Person Receiving Report)*	Method of reporting ☐ Phone ☐ Fax ☐ Mail ☐ Active Surveillance ☐ Other_____

Any unusual illness, disease clusters or possible outbreaks should be reported *immediately* by telephone.
Please fax all completed reports to 215-545-8362, or call 215-685-6748 to report case by phone.

Attachment 3: Human Influenza A (H5) Domestic Case Screening Form

Human Influenza A (H5) Domestic Case Screening Form

CDC Case ID:

1. Reported By		
Date reported to state or local health department: __ __ / __ __ / __ __ __ __ (m m d d y y y y)		State/ local Assigned Case ID:
Last Name:		First Name:
State:	Affiliation:	Email:
Phone 1:	Phone 2:	Fax:

2. Patient Information		
City of Residence:	County:	State:
Age at onset: _____ ☐ Year(s) ☐ Month(s)	Race. *(Choose One)* ☐ American Indian/Alaska Native ☐ Asian ☐ Black ☐ Native Hawaiian/Other Pacific Islander ☐ White ☐ Unknown	
Sex: ☐ Male ☐ Female	Ethnicity: ☐ Non Hispanic ☐ Hispanic	

3. Optional Patient Information	
Last Name:	First Name:

4. Signs and Symptoms

A. Date of symptom onset: __ __ / __ __ / __ __ __ __ (m m d d y y y y)

B. What symptoms and signs did the patient have during the course of illness? (check all that apply)

☐ Fever > 38° C (100.4° F) ☐ Feverish (temperature not taken) ☐ Conjunctivitis

☐ Cough ☐ Headache ☐ Shortness of breath

☐ Sore throat ☐ Other (specify): _____

C. Was a chest X-ray or chest CAT scan performed?	☐ Yes*	☐ No	☐ Unknown
If yes*, did the patient have radiographic evidence of pneumonia or respiratory distress syndrome (RDS)?	☐ Yes*	☐ No	☐ Unknown

(continued from previous page)

Epidemiologic Risk Factors

CDC Case ID:

5. Travel/Exposures

A. In the 10 days prior to illness onset, did the patient travel to any of the countries listed in the table below? If yes*, please fill in arrival and departure dates for all countries that apply. ☐ Yes* ☐ No** ☐ Unknown

****If patient did not travel outside U.S., skip to question 6.**

Country	Arrival Date	Departure Date	Country	Arrival Date	Departure Date
☐ Afghanistan			☐ Myanmar (Burma)		
☐ Bangladesh			☐ Nepal		
☐ Brunei			☐ North Korea		
☐ Cambodia			☐ Oman		
☐ China			☐ Pakistan		
☐ Hong Kong			☐ Papua New Guinea		
☐ India			☐ Philippines		
☐ Indonesia			☐ Saudi Arabia		
☐ Iran			☐ Singapore		
☐ Iraq			☐ South Korea		
☐ Israel			☐ Syria		
☐ Japan			☐ Taiwan		
☐ Jordan			☐ Thailand		
☐ Laos			☐ Turkey		
☐ Lebanon			☐ Viet Nam		
☐ Macao			☐ Yemen		
☐ Malaysia					

For the questions 5B to 5E,
In the 10 days prior to illness onset, <u>while in the countries</u> listed above . . . .

B. Did the patient come within 1 meter (3 feet) of any live poultry or domesticated birds (e.g. visited a poultry farm, a household raising poultry, or a bird market)? ☐ Yes* ☐ No ☐ Unknown

If Yes*

C. Did patient touch any recently butchered poultry? ☐ Yes ☐ No ☐ Unknown

D. Did the patient visit or stay in the same household with anyone with pneumonia or severe flu-like illness? ☐ Yes ☐ No ☐ Unknown

E. Did the patient visit or stay in the same household with a suspected human influenza A(H5) case?* ☐ Yes ☐ No ☐ Unknown

F. Did the patient visit or stay in the same household with a known human influenza A(H5) case?* ☐ Yes ☐ No ☐ Unknown

** SEE Influenza A (H5): Interim U.S. Case Definitions*

(continued from previous page)

CDC ID:

6. Exposure for Non Travelers	
For patients whom did not travel outside the U.S., **in the 10 days prior to illness onset**, did the patient visit or stay in the same household with a traveler returning from one of the countries listed above who developed pneumonia or severe flu-like illness?	☐ Yes* ☐ No ☐ Unknown
If yes*, was the contact a confirmed or suspected H5 case patient?	☐ Yes* ☐ No ☐ Unknown
If yes*: CDC ID: _____ STATE ID: _____	

Laboratory Evaluation

7. State and local level influenza test results	
Specimen 1	
☐ NP swab ☐ Broncheoalveolar lavage specimen (BAL) ☐ NP aspirate ☐ OP swab ☐ Other _____	Date Collected: __ __ / __ __ / __ __ __ __ (m m d d y y y y)
Test Type: ☐ RT-PCR ☐ Direct fluorescent antibody (DFA) ☐ Viral Culture ☐ Rapid Antigen Test* *Name of Rapid Test:	Result: ☐ Influenza A ☐ Influenza B ☐ Influenza (type unk) ☐ Negative ☐ Pending
Specimen 2	
☐ NP swab ☐ Broncheoalveolar lavage specimen (BAL) ☐ NP aspirate ☐ OP swab ☐ Other _____	Date Collected: __ __ / __ __ / __ __ __ __ (m m d d y y y y)
Test Type: ☐ RT-PCR ☐ Direct fluorescent antibody (DFA) ☐ Viral Culture ☐ Rapid Antigen Test* *Name of Rapid Test:	Result: ☐ Influenza A ☐ Influenza B ☐ Influenza (type unk) ☐ Negative ☐ Pending
Specimen 3	
☐ NP swab ☐ Broncheoalveolar lavage specimen (BAL) ☐ NP aspirate ☐ OP swab ☐ Other _____	Date Collected: __ __ / __ __ / __ __ __ __ (m m d d y y y y)
Test Type: ☐ RT-PCR ☐ Direct fluorescent antibody (DFA) ☐ Viral Culture ☐ Rapid Antigen Test* *Name of Rapid Test:	Result: ☐ Influenza A ☐ Influenza B ☐ Influenza (type unk) ☐ Negative ☐ Pending

(continued from previous page)

CDC ID:

8. List specimens sent to the CDC

Select a SOURCE* from the following list for each specimen: Serum (acute), serum (convalescent), NP swab, NP aspirate, broncheoalveolar lavage specimen (BAL), OP swab, tracheal aspirate, or tissue

Specimen 1: ☐ Clinical Material ☐ Extracted RNA ☐ Virus Isolate	Source*: ----------	Collected : __ __ / __ __ / __ __ __ __ (m m d d y y y y) Date Sent: __ __ / __ __ / __ __ __ __ (m m d d y y y y)
Specimen 2: ☐ Clinical Material ☐ Extracted RNA ☐ Virus Isolate	Source*: ----------	Collected : __ __ / __ __ / __ __ __ __ (m m d d y y y y) Date Sent: __ __ / __ __ / __ __ __ __ (m m d d y y y y)
Specimen 3: ☐ Clinical Material ☐ Extracted RNA ☐ Virus Isolate	Source*: ----------	Collected : __ __ / __ __ / __ __ __ __ (m m d d y y y y) Date Sent: __ __ / __ __ / __ __ __ __ (m m d d y y y y)
Specimen 4: ☐ Clinical Material ☐ Extracted RNA ☐ Virus Isolate	Source*: ----------	Collected : __ __ / __ __ / __ __ __ __ (m m d d y y y y) Date Sent: __ __ / __ __ / __ __ __ __ (m m d d y y y y)
Specimen 5: ☐ Clinical Material ☐ Extracted RNA ☐ Virus Isolate	Source*: ----------	Collected : __ __ / __ __ / __ __ __ __ (m m d d y y y y) Date Sent: __ __ / __ __ / __ __ __ __ (m m d d y y y y)
Carrier:	Tracking #:	

9. Case Notes:

Attachment 4: Influenza Line List – Institutional Outbreaks

Influenza Outbreak Summary Report Form
Reporting Information

Report Date: _____/_____/_____

Name of Reporter:_____Title: _____

Reporter Phone: _____Reporter Email: _____

Name or Reporting Agency: _____

Agency Address: _____

Agency Phone:_____ Agency Fax: _____

Cluster Information

Number of Cases:

Occupants_____Staff_____ #of Laboratory Confirmed Cases:_____

Date of onset of first case:_____Age Range affected;_____

Total number of occupants: _____Total number of occupants immunized:_____

Symptoms (circle all that apply): Fever Cough Chills Sore Throat Arthralgia Myalgia SOB

Staff Information:

Total number of staff _____Total Number of staff immunized _____

Total number of staff with Influenza like Illness (ILI) _____

Medical Director: _____Medical Director Phone: _____

Does the facility have a copy of the outbreak recommendations: Y N

Line List of occupants with ILI requested: Y N

Outbreak Outcome:

Date of onset of last case: _____Date outbreak declared over:_____

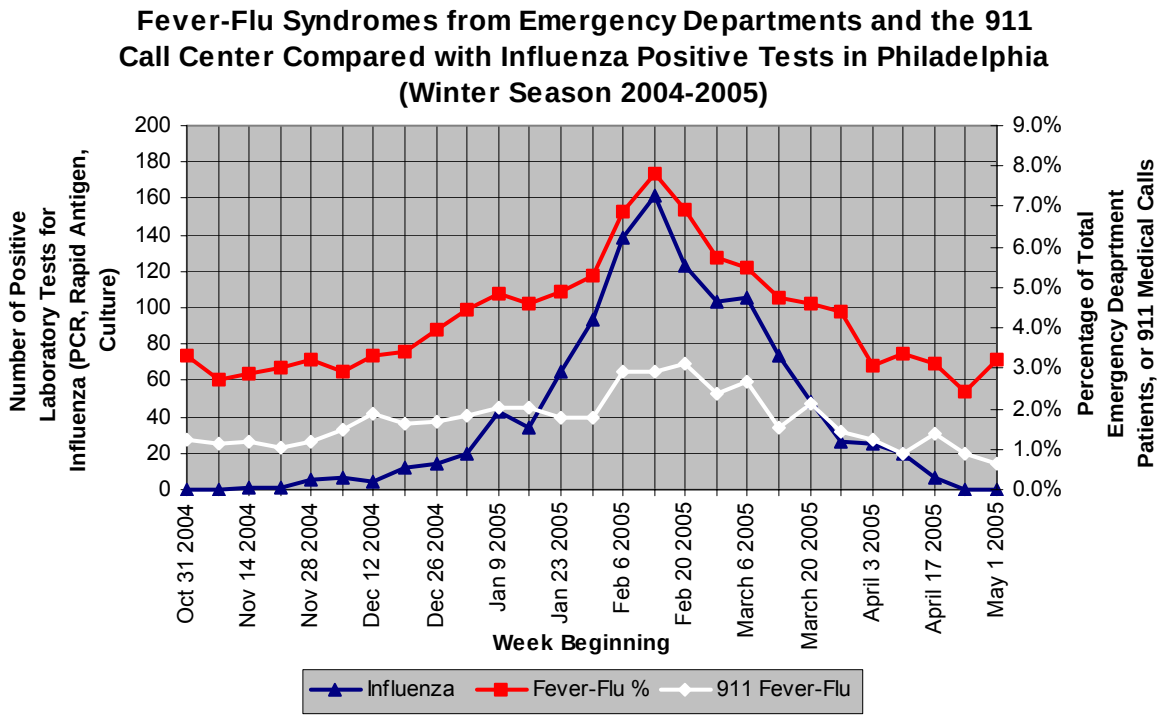
Total # of cases hospitalized: Occupants _____ Staff:_____

_____

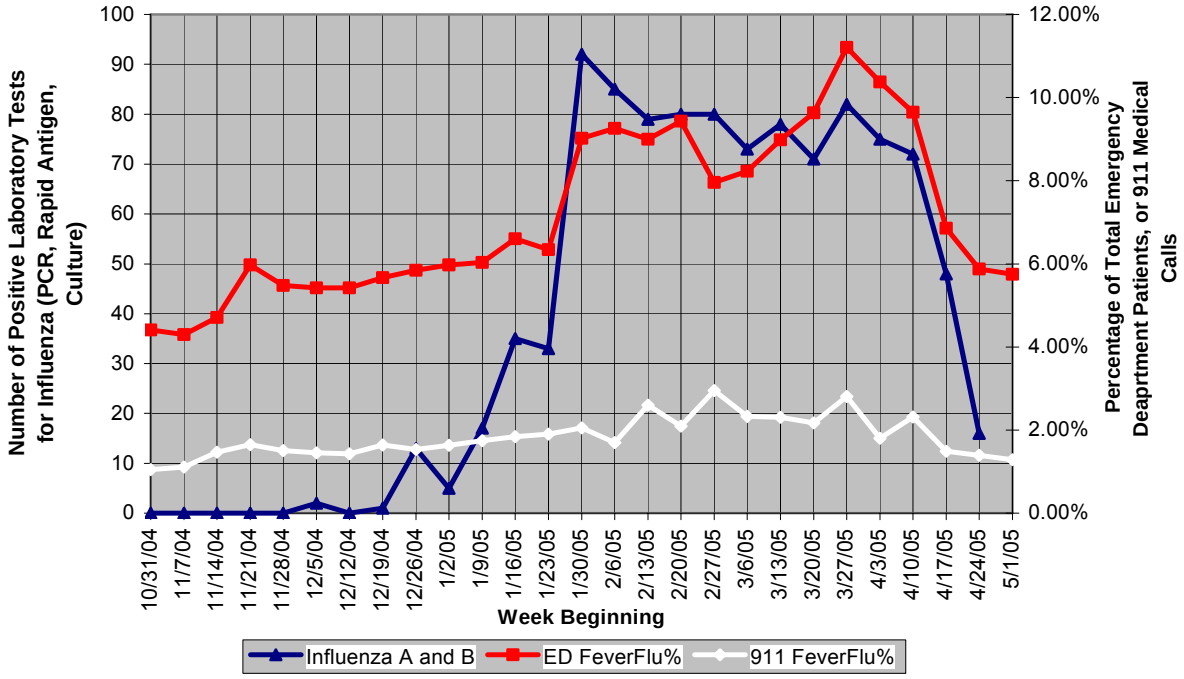
Total # of immunized cases hospitalized: Occupants _____ Staff:_____

Number of Deaths _____

Attachment 5. Output of PDPH Syndromic Surveillance



Fever-Flu Syndromes from Emergency Departments and the 911 Call Center Compared with Influenza Positive Tests in Philadelphia (Winter Season 2005-2006)



Attachment 6: Sample Disease Surveillance Bulletin

PHILADELPHIA DEPARTMENT OF PUBLIC HEALTH — DIVISION OF DISEASE CONTROL

DISEASE SURVEILLANCE SUMMARY

FOR THE CITY OF PHILADELPHIA

CARMEN I. PARIS, M.P.H
Interim Health Commissioner
JOSEPH C. CRONAUER
Executive Deputy / Chief of Staff
CAROLINE C. JOHNSON, MD
Director, Division of Disease Control

SUMMARY OF RESPIRATORY VIRUS AND SYNDROMIC SURVEILLANCE FINDINGS — MAY 10, 2006

Introduction

The Philadelphia Department of Public Health (PDPH) conducts enhanced disease surveillance in addition to traditional provider-based notifiable disease reporting throughout the year. PDPH conducts daily analysis of Emergency Department triage data from 23 area hospitals. Each patient visit is coded into a specific disease syndrome based on the patient's chief complaint. The Division of Disease Control also receives weekly aggregate data on positive tests for certain respiratory viruses from ten area clinical laboratories. This bulletin summarizes key observations among disease trends derived from these data sources.

Surveillance Findings

PDPH has observed gradual and sustained increases among infectious disease syndromes from the 23 emergency departments over the 2005-2006 winter season. The fever-flu and gastrointestinal syndromes (visits associated with symptoms of vomit and/or diarrhea) had the greatest activity in March and early April, and have begun to decrease over the past 4 weeks (Figure 1). The increase in the occurrence of these syndromes is consistent with trends in laboratory reports of circulating influenza viruses.

Influenza A transmission began in December 2005 during the 2005-2006 respiratory virus season, and declined gradually during March and April 2006. We have observed a late and sustained wave of influenza B transmission this season, which began in March 2006 and lasted for approximately 8 weeks (Figure 2). In addition to influenza, clusters of gastrointestinal illness were reported in the city and regionally during March and April. Many of these clusters were attributed to laboratory confirmed norovirus and rotaviruses, and were consistent with observed increases in the vomit and diarrhea syndromes seen in the Emergency Department data. Visits related to infectious disease syndromes and respiratory virus reports have decreased in recent weeks and are approaching expected summer baseline rates.

Finally, we have observed recent increases in patients presenting with asthma and respiratory complaints to area hospitals over the past week. These increases are likely associated with seasonal allergies based upon review of specific complaints and diagnoses (asthma curve not shown).

Figure 1. Selected Syndromes from Philadelphia Emergency Department Visits, Winter 2005-2006

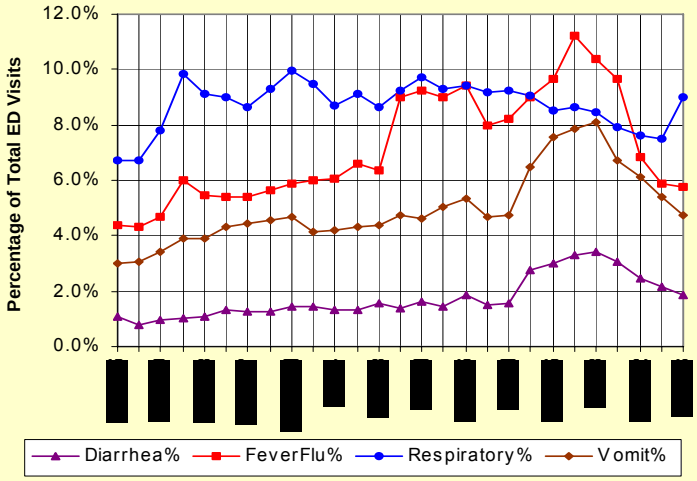
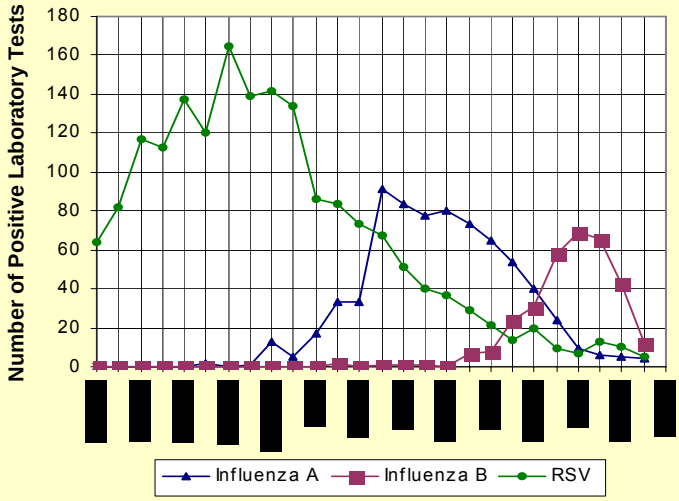


Figure 2. Respiratory Virus Laboratory Tests in Philadelphia, Winter 2005-2006



For questions regarding these surveillance systems, please contact Dr. Steve Alles or Mr. Jose Lojo at 215 685 6741

PHILADELPHIA DEPARTMENT OF PUBLIC HEALTH
Division of Disease Control 500 South Broad Street, Philadelphia, PA 19146 215-685-6740 215-545-8362 (fax)

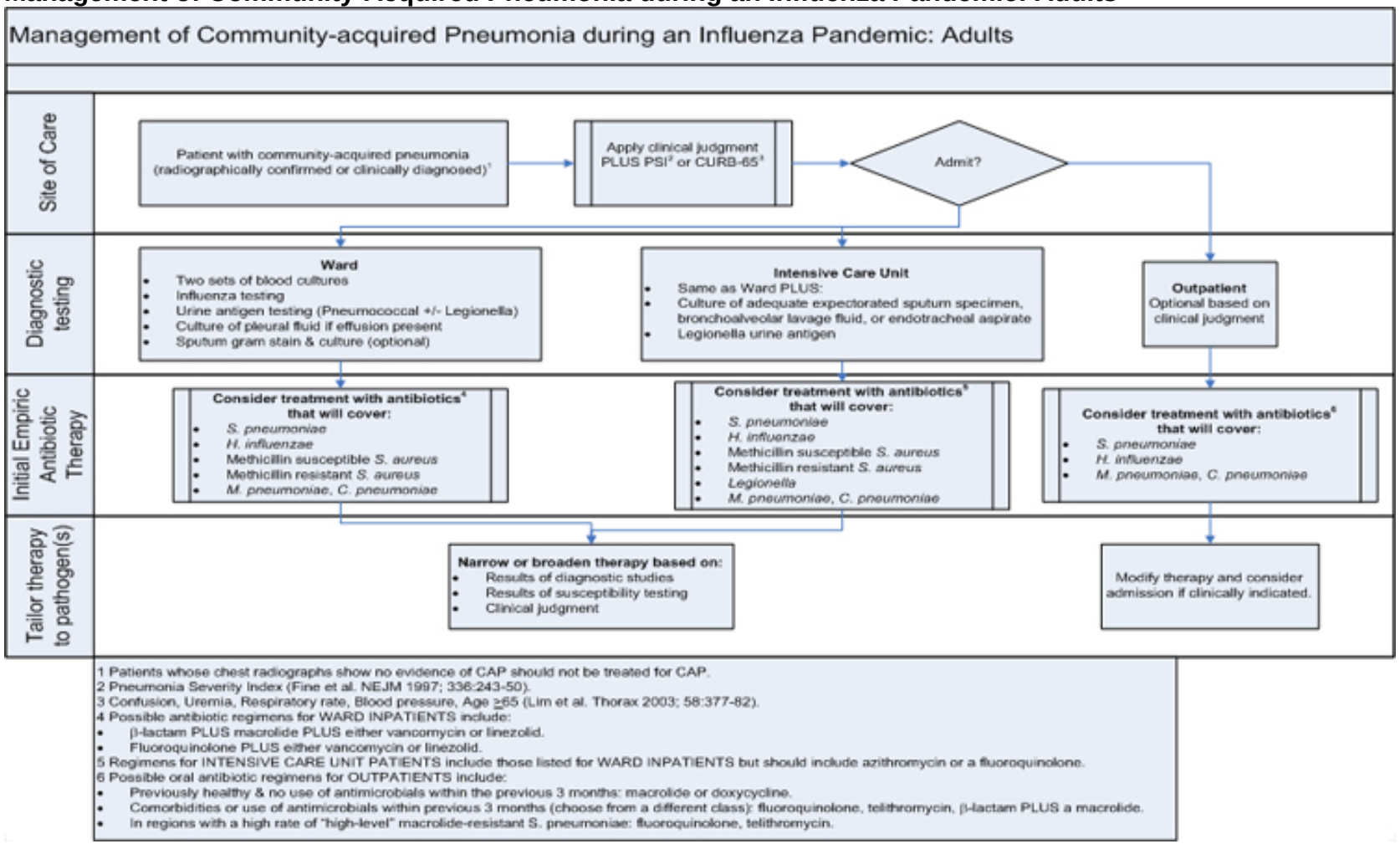
Attachment 7– Infection Control
Philadelphia Department of Public Health
Standard Precautions and Droplet Precautions
for Infection Control of Patients with Pandemic Influenza

Component	Recommendations
STANDARD PRECAUTIONS	See www.cdc.gov/ncidod/hip/ISOLAT/std_prec_excerpt.htm
Hand hygiene	Perform hand hygiene after touching blood, body fluids, secretions, excretions, and contaminated items; after removing gloves; and between patient contacts. Hand hygiene includes both hand washing with either plain or antimicrobial soap and water or use of alcohol-based products (gels, rinses, foams) that contain an emollient and do not require the use of water. If hands are visibly soiled or contaminated with respiratory secretions, they should be washed with soap (either non-antimicrobial or antimicrobial) and water. In the absence of visible soiling of hands, approved alcohol-based products for hand disinfection are preferred over antimicrobial or plain soap and water because of their superior microbicial activity, reduced drying of the skin, and convenience.
Gloves	For touching blood, body fluids, secretions, excretions, and contaminated items; for touching mucous membranes and nonintact skin.
Gown	During procedures and patient-care activities when contact of clothing/exposed skin with blood/body fluids, secretions, and excretions is anticipated.
Face/eye protection (e.g. surgical or procedure mask and goggles or face shield)	During procedures and patient care activities likely to generate splash or spray of blood, body fluids, secretions, or excretions.
Patient Resuscitation	Avoid unnecessary mouth-to-mouth contact; use mouthpiece, resuscitation bag, or other ventilation devices to prevent contact with mouth and oral secretions.
Soiled Patient Care Equipment	Handle in a manner that prevents transfer of microorganisms to oneself, others, and environmental surfaces; wear gloves if visibly contaminated; perform hand hygiene after handling equipment.
Patient-Care Equipment	Wear gloves when handling and transporting patient-care equipment; wipe heavily soiled equipment with an EPA-approved hospital disinfectant before removing it from the patient's room; follow current recommendations for cleaning and disinfection or sterilization of reusable patient-care equipment; and 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.

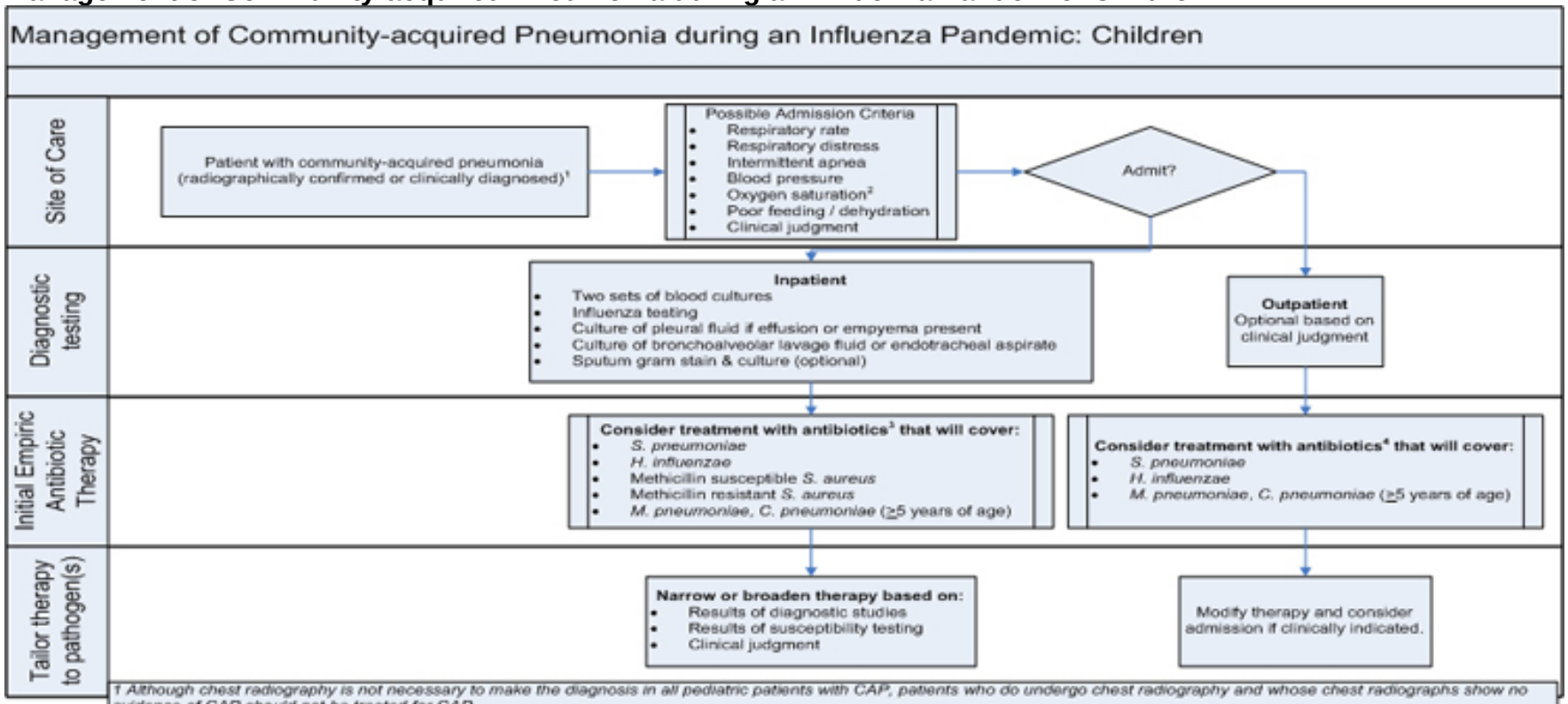
Soiled Linen and Laundry	Handle in a manner that prevents transfer of microorganisms to oneself, others, and to environmental surfaces; place soiled linen directly into a laundry bag in the patient's room; contain linen in a manner that prevents the linen bag from opening or bursting during transport and while in the soiled linen holding area; wear gloves (gowns if necessary) when handling and transporting soiled linen and laundry; do not shake or otherwise handle laundry in a manner that might create an opportunity for disease transmission; perform hand hygiene; and wash and dry linen according to routine standards and procedures.
Dishes and Eating Utensils	Wash reusable dishes and utensils in a dishwasher with recommended water temperature (www.cdc.gov/ncidod/hip/enviro/guide.htm); disposable dishes and utensils (e.g. used in an alternative care site set-up for large numbers of patients) should be discarded with general waste; wear gloves when handling patient trays, dishes, and utensils.
Needles and Other Sharps	Use devices with safety features when available; do not recap, bend, break, or hand-manipulate used needles; if recapping is necessary, use a one-handed scoop technique; lace used sharps in a puncture-resistant container.
Environmental Cleaning and Disinfection	Inpatient: Keep areas around the patient free of unnecessary supplies and equipment to facilitate daily cleaning; Follow facility procedures for regular cleaning of patient-occupied room; use EPA-registered hospital detergent-disinfectant; follow standard facility procedures for cleaning and disinfection of environmental surfaces; emphasize cleaning/disinfection of frequently touched surfaces (e.g. bed rails, phones, lavatory surfaces); clean and disinfect spills of blood and body fluids in accordance with current recommendations for Isolation Precautions; wear gloves in accordance with facility policies. Post-Discharge: Follow standard facility procedures for post-discharge cleaning of isolation room; clean and disinfect all surfaces that were in contact with the patient or might have been contaminated during patient care; no special treatment is needed for window curtains, ceilings, and walls unless there is visible evidence of soiling; wear gloves in accordance with facility policies.
Disposal of Solid Waste	Contain and dispose of solid waste (medial and non-medical) in accordance with facility procedures and/or local regulations for handling and disposal of solid waste, including needles and other sharps, and non-medical waste; wear gloves when handling waster; wear gloves when handling waste containers; discard as routine waste used patient-care supplies that are not likely to be contaminated (e.g. paper wrappers); perform hand hygiene.
Respiratory Hygiene/Cough Etiquette (implement at first point of patient encounter: triage, reception)	Cover the mouth/nose when sneezing/coughing; use tissues and dispose in no-touch receptacles; perform hand hygiene after contact with respiratory secretions; wear a mask (procedure or surgical) if tolerated; sit or stand as far away as possible (more than 3 feet) from persons who are not ill.

DROPLET PRECAUTIONS	
Patient Placement	Place patients with influenza in a private room or cohort with other patients with influenza. Keep door closed or slightly ajar; maintain room assignments of patients in nursing homes and other residential settings; apply droplet precautions to all persons in the room.
Personal Protective Equipment	Wear a surgical or procedure mask for entry into patient room; wear other PPE as recommended for standard precautions.
Patient Transport	Limit patient movement outside of room to medically necessary purposes; have patient wear a procedure or surgical mask when outside the room.
Other	Follow standard precautions and facility procedures for handling linen, laundry, dishes and eating utensils, and for cleaning/disinfection of environmental surfaces and patient care equipment, disposal of solid waste, and postmortem care.
AEROSOL-GENERATING PROCEDURES	During procedures that may generate small particles of respiratory secretions (e.g. endotracheal intubation, bronchoscopy, nebulizer treatment, suctioning), healthcare personnel should wear gloves, gown, face/eye protection, and a fit-tested N-95 respirator or other appropriate particulate respirator.

Clinical Guidelines
Attachment 8
Management of Community-Acquired Pneumonia during an Influenza Pandemic: Adults



Attachment 9
Management of Community-acquired Pneumonia during an Influenza Pandemic: Children



Attachment 10: Community Disease Control and Prevention

Principles of Modern Quarantine

The goal of quarantine is to protect the public by separating those exposed to a dangerous communicable disease from the general population. It represents collective action for the common good that is predicated on aiding individuals who are already infected or exposed and protecting others from inadvertent exposure. Principles of modern quarantine[4] include:

Principle 1. Modern quarantine is used when:

- A person or a well defined group of people has been exposed to a highly dangerous and highly contagious disease
- Resources are available to care for quarantined people
- Resources are available to implement and maintain the quarantine and deliver essential interventions

Principle 2. Modern quarantine encompasses a range of disease-containment strategies, including:

- Short-term, voluntary home-curfew
- Restrictions on the assembly of groups of people (e.g., school events)
- Cancellation of public events
- Suspension of public gatherings and closings of public places (e.g., theaters)
- Restrictions on travel (air, rail, water, motor vehicle, pedestrian)
- Closure of mass transit systems
- Snow days
- “Cordon sanitaire” (a guarded barrier restricting passage in and out of an area)

Principle 3. Modern quarantine is used in combination with other interventions and public health tools, including:

- Enhanced disease surveillance and symptom monitoring
- Rapid diagnosis and treatment for those who fall ill
- Preventive interventions for quarantined individuals, including vaccination or prophylactic treatment, depending on the disease

Principle 4. Quarantined individuals will be sheltered, fed, and cared for under the supervision of trained healthcare professionals. They will also be among the first to receive all available medical interventions to prevent and control disease, including:

- Vaccination (e.g., in the case of smallpox)
- Antibiotics (e.g., in the case of plague)
- Early and rapid diagnostic testing and symptom monitoring

- Early treatment if symptoms appear

Quarantined people may be cared for at home, in a designated emergency facility, or in a specialized hospital, depending on the disease and the available resources.

Principle 5. Modern quarantine lasts only as long as necessary to protect the public by providing public health interventions (e.g., immunization or drug treatment, as required) and ensuring that quarantined persons do not become ill or infect others.

Principle 6. Modern quarantine does not have to be absolute to be effective. Modeling exercises suggest that partial quarantine can be effective in slowing the rate of smallpox spread, especially when combined with vaccination. The goal is to reduce the reproductive rate (the number of secondary cases from an index case) to < 1 to extinguish an epidemic.

Principle 7. Modern quarantine is more likely to involve limited numbers of exposed persons in small area, than to involve large numbers of persons in whole neighborhoods or cities. The small areas may be thought of as "boxes" or "concentric circles" drawn around individual disease cases. Logistical issues will vary in each case, depending on the size and location of the boxes.

Examples of "boxes" include:

- People on an airplane or cruise ship on which a passenger is ill with a suspected quarantinable disease
- People who have contact with a contagion-infected person whose source of disease exposure is unknown

Principle 8. Implementation of modern quarantine requires a clear understanding of public health roles at the local, state, and federal levels, based on well-understood legal authorities at each level.

Principle 9. Implementation of modern quarantine requires coordinated preparedness planning by many public and private response partners, including agencies and groups involved in public health, healthcare, transportation, emergency response, law enforcement, and security.

Principle 10. Implementation of modern quarantine requires the trust and participation of the general public, who must be informed about the dangers of quarantinable diseases *before* an outbreak occurs, as well as during an actual event.

Attachment 11. Recommendations for Quarantine

General considerations

- Monitor each quarantined person daily, or more frequently if feasible, for fever, respiratory symptoms, and other symptoms of early influenza disease.
- Monitor compliance with quarantine through daily visits or telephone calls.
- Provide a hotline number for quarantined persons to call if they develop symptoms or have other immediate needs.
- If a quarantined person develops symptoms suggestive of influenza, arrangements should be in place for separating that person from others in quarantine and ensuring immediate medical evaluation.
- Provide persons in quarantine with all needed support services, including 1) psychological support, 2) food and water, 3) household and medical supplies, and 4) care for family members who are not in quarantine. Financial issues, such as medical leave, may also need to be considered.
- Collect data related to quarantine activities to guide ongoing decision-making including information on each person quarantined:
    - Relationship to the case-patient
    - Nature and time of exposure
    - Whether the contact was vaccinated or on antiviral prophylaxis or using PPE
    - Underlying medical conditions
    - Number of days in quarantine
    - Symptom log
    - Basic demographics
    - Compliance with quarantine

Based on current available data, the recommended duration of quarantine for influenza is generally **10 days** from the time of exposure. (This period may be adjusted based on available information during a pandemic.) At the end of the designated quarantine period, contacts should have a final assessment for fever and respiratory symptoms. Persons without fever or respiratory symptoms may return to normal activities.

Home quarantine

Whenever possible, contacts should be quarantined at home. Home quarantine requires the fewest additional resources, although arrangements must still be made for monitoring patients, reporting symptoms, transporting patients for medical evaluation if necessary, and providing essential supplies and services. Home quarantine is most suitable for contacts with a home environment that can meet their basic needs and in which unexposed household members can be protected from exposure. Other considerations include:

- Persons in home quarantine must be able to monitor their own symptoms (or have them monitored by a caregiver).
- The person's home should be evaluated for suitability before being used for quarantine, using a questionnaire administered to the quarantined person or the caregiver. Additional guidance on use of a residence for quarantine is provided in Appendix 7.
- Quarantined persons should minimize interactions with other household members to prevent exposure during the interval between the development and recognition of symptoms. Precautions may include 1) sleeping and eating in a separate room, 2) using a separate bathroom, and 3) appropriate use of personal protective equipment
- Persons in quarantine may be assessed for symptoms by either active or passive monitoring. Active monitoring of contacts in quarantine may overcome delays resulting from the insidious onset of symptoms or denial among those in quarantine.
- Household members may go to school, work, etc., without restrictions unless the quarantined person develops symptoms. If the quarantined person develops symptoms, household members should remain at home in a room separate from the symptomatic person and await additional instructions from health authorities.
- Household members can provide valuable support to quarantined persons by helping them feel less isolated and ensuring that essential needs are met.
- Immediate and ongoing psychological support services should be provided to minimize psychological distress.
- Quarantined persons should be able to maintain regular communication with their loved ones and healthcare providers.

Quarantine in designated facilities

In some cases, affected persons may not have access to an appropriate home environment for quarantine. Examples include travelers; persons living in dormitories, homeless shelters, or other group facilities; and persons whose homes do not meet the minimum requirements for quarantine. In other instances, contacts may have an appropriate home environment but may not wish to put family members at risk. In these situations, health officials should identify an appropriate community-based quarantine facility. Monitoring of quarantined persons may be either passive or active, although active monitoring may be more appropriate in a facility setting. Facilities designated for quarantine of persons who cannot or choose not to be quarantined at home should meet the same criteria listed for home quarantine. Evaluation of potential sites for facility-based quarantine is an important part of preparedness planning.

Working quarantine

This type of quarantine applies to healthcare workers or other essential personnel who are at occupational risk of influenza infection. These groups may be subject to quarantine either at home or in a designated facility during off-duty hours. When off

duty, contacts on working quarantine should be managed in the same way as persons in quarantine at home or in a designated facility. Local officials should:

- Monitor persons in working quarantine for symptoms during work shifts
- Promptly evaluate anyone who develops symptoms
- Provide transportation to and from work, if needed
- Develop mechanisms for immediate and ongoing psychological support

At the end of the designated quarantine period, contacts should receive physical (fever and respiratory symptoms) and psychological health assessments. Persons without fever or respiratory symptoms may return to normal activities. Persons who exhibit psychological distress should be referred to mental health professionals for additional support services.

Attachment 12.

Isolation and Quarantine Response Plan

Philadelphia Department of Public Health (PDPH)

I. OVERVIEW

A. Command

Philadelphia Department of Public Health will serve as the lead agency in the event of a disease outbreak or biological event requiring isolation and quarantine (I&Q), including an outbreak of pandemic influenza. The local health officer shall establish plans, policies, and procedures for instituting emergency measures necessary to prevent the spread of communicable disease or contamination, in consultation with local health care providers, health facilities, emergency management personnel, law enforcement agencies, and any other entity he or she deems necessary.

B. Authority

Authority to impose isolation and quarantine is established in The Philadelphia Code §§ 6-102(29)(44), 6-203, 6-204, 6-205, 6-213. 35 P.S. § 2140 *et seq.*

> The Commissioner of Health and by authority of the Philadelphia Home Rule Charter, the Mayor and Managing Director in consultation with the Commissioner of Health may order the isolation or quarantine of any person who is reasonably suspected of having or being exposed to any disease listed by the Board of Health as a quarantinable disease in the place and in such manner as the Board may by regulation prescribe in order to protect the public health and prevent the spread of such disease, but such quarantine shall continue only until such time as a prompt and timely determination is made with the approval of the Department whether any person so quarantined does in fact have or is exposed to any such disease.
>
> Where a communicable disease which constitutes a serious danger to health is spreading either in the City or in the communities surrounding the City, and threatens to reach epidemic proportions unless immediately controlled; where the danger thereof is such that the Board does not have time to list the said disease as quarantinable and issue regulations for its effective control; and where the Mayor of the City has suspended the requirements of Section 8-407 (procedural requirements to issue regulations) of the Charter, the Department shall have the authority to issue orders, which shall be effective until the Board may meet and

promulgate regulations, listing said disease as a quarantinable disease and providing for quarantine or isolation of persons who have, or are reasonably suspected of having, or have been exposed to such disease, providing for the control of animals, the control of environmental sanitation, and for such other measures as are necessary to prevent the spread of said disease. The Board of Health may by regulation prescribe such restraints or controls on animals as it shall find necessary to prevent the spread of any disease transmissible from animals to human beings.

On June 7th 2006, the Board of Health approved an amendment to the city's *Regulations Governing Control of Communicable Diseases,* identifying novel strains of influenza with pandemic potential as infectious diseases of public health importance, and therefore should be included on the list of reportable conditions in the Regulations; identifying novel strains of influenza with pandemic potential as infectious diseases of public health importance, and therefore subject to regulations imposing isolation and quarantine.

The Mayor, Managing Director, or Emergency Management Director may exercise Command and Control of the Police and Fire Departments in carrying out isolation or quarantine orders locally, in consultation with the Commissioner of Health.

Whenever an epidemic of a listed quarantinable disease or whenever an emergency as described in § 6-205(1) is found to exist or to be seriously threatened, the Department may in accordance with the regulations of the Board, or by order, as the case may be, forbid congregation of persons at schools, theaters, swimming places, or any public place where such measure is necessary to prevent the spread of such disease. The principals of justification of the Crimes Code, 18 Pa. C.S. Chapter 5, govern the use of force, including deadly force. The Philadelphia Code at § 6-203 states that the Health Department may order the examination of any person having or reasonably suspected of having any venereal disease, active tuberculosis or any other communicable disease which is dangerous to human life and which is transmissible through human contact or close human association.

The Philadelphia Code at § 6-210 states that whenever it is necessary to control effectively the spread of communicable disease, the Department may, in accordance with regulations prescribed by the Board, require the immunization of any person against any communicable disease listed and designated by the Board as one against which immunization is effective. In addition to the fines set forth in The Philadelphia Code § 6-505(l), any person who fails to comply with an order for his **isolation** issued pursuant to §§ 6-204 and 6-502 of this Title shall be subject to imprisonment for 90 days and during such term of imprisonment shall be isolated in such

place, for such period and in such manner as the Department may designate.

C. Coordination

1. Small Scale Isolation and Quarantine

A *small scale* isolation and quarantine event is defined as the need, or anticipated need, for isolation or quarantine of less than 50 people at a single point in time. For these situations requiring limited isolation and quarantine, PDPH operations may continue under normal organizational structure. Management of the isolation and quarantine events will be handled by the Division of Disease Control, with support from other PDPH divisions, hospitals and healthcare facilities, the Law Department, and other city agencies, as needed. (The Division of Disease Control has prior experience in implementation of isolation and quarantine for communicable diseases such as TB, SARS, and selected other diseases. Small scale events are likely manageable with existing staff and resources.)

2. Large Scale Isolation and Quarantine

A *large-scale* isolation and quarantine event is defined as the need, or anticipated need, for isolation or quarantine of 50 or more people at a single point in time. Any situation that requires isolation and quarantine of large numbers of people will be treated as a public health emergency. PDPH will follow an Incident Command System (ICS) structure. ICS is a standardized emergency incident management system widely used by fire departments, law enforcement, and local, state, and federal emergency response agencies to include the National Incident Management System and the National Response Plan. It presents a clear chain of command with suggested ICS role / functional responsibilities, yet is flexible enough to adapt to any emergency situation.

ICS structure proposed for adoption during a public health emergency is presented in Appendix titled*, Command and Control, PDPH Emergency Preparedness Plan*. Incorporation of ICS into the public health response will also facilitate communication, coordination, cooperation and integration between PDPH personnel and operations with other city, state and federal emergency response and management organizations.

D. Definitions

- ***Isolation*** refers to the separation of ill persons with a confirmed or suspected communicable disease from those who are healthy. Those identified for isolation are termed **“cases”.**

- ***Quarantine*** is the separation or restriction of activities of persons who are not ill but who are believed to have been exposed to a communicable disease and are therefore at highest risk of becoming infected. Those identified for quarantine are termed **"contacts".**

- ***Community Containment:*** Isolation and quarantine measures are generally applied on an individual basis, though broader community containment measures may be applied to groups of persons or to communities during outbreaks characterized by extensive transmission. These interventions range from measures to increase social distance among community members (e.g. cancellation of public gatherings, use of masks, and implementation of community-wide "snow days") to community-wide quarantine.

II. PRINCIPLES OF ISOLATION OR QUARANTINE

A. Essential Services

Attending to the medical, legal, social, psychological, and logistical challenges facing isolated or quarantined persons is key to the successful application of containment measures for those who have needs that they cannot meet on their own. Essential services and supplies for persons in isolation and quarantine include:

1. Food and water
2. Utilities (electricity, water, sewage, garbage collection, telephone, heating or air conditioning, etc.)
3. Shelter
4. Medicines, medical supplies, medical consultation and care
5. Mental health and psychological support services
6. Other supportive services (such as child care, laundry, banking, essential shopping, etc)

B. Voluntary Isolation and Quarantine

Persons who do not require hospitalization for medical reasons should be isolated in their homes whenever possible. Likewise, a personal residence is generally the preferred setting for quarantine.

Isolation and quarantine are optimally performed with the consent and cooperation of the patient. It is anticipated that 80% of persons in need of isolation or quarantine will cooperate, and that Court Orders or enforced detainment will not be necessary.

C. Involuntary Isolation and Quarantine

In the event the case or contact refuses or is unable to comply with voluntary isolation, the Pennsylvania Court may issue an emergency detention order placing a person or group of persons into detention for purposes of isolation or quarantine.

Involuntary isolation or quarantine may occur in a hospital, specially designated isolation facility, prison hospital, or private residence. The site will be determined on a case-by-case basis, based on availability of specific sites and ability to enforce the confinement.

III. ACTIVATION STEPS: ISOLATION AND QUARANTINE RESPONSE

A. Reporting of Cases and Contacts

Healthcare facilities and medical providers will notify and coordinate with PDPH when they have identified a suspected case of pandemic influenza that might require isolation or quarantine. Such facilities currently have infection control plans and protocol for infectious diseases, based on the Centers for Disease Control (CDC) guidelines, in order to protect patients, healthcare workers, and the community.

In addition, the Department's investigation team, or teams from other local Health Departments, may identify cases and contacts in need of isolation or quarantine.

Suspect pandemic influenza cases and contacts will be reported to the PDPH Division of Disease Control through usual means of communication, until such time that an Emergency Operation Center or other designated response telephone number is activated.

1. Exemption from Quarantine

PDPH recognizes one exemption from quarantine requirements following exposure to pandemic influenza. Specifically, hospital-based healthcare workers who have been exposed to a case may continue to work, using parameters established for "working quarantine." The rationale for this exemption is that these employees serve critical functions in their hospital and that their employer (the hospital) assumes responsibility for active surveillance of the employee on entry and egress from work site.

The procedures and requirements for implementing working quarantine are specified in the Hospital Pandemic Influenza Preparedness guidelines (in preparation).

B. Evaluation of Cases and Contacts

In concert with healthcare providers, PDPH will investigate all suspect pandemic influenza cases and contacts to determine/confirm the need for isolation or quarantine.

Standard case investigation forms will be used to gather the requisite information, including demographic information, exposure history, risks, signs and symptoms, laboratory tests, etc. Key pieces of information to gather will be the dates of exposure and/or onset of symptoms, as these will be used to help determine the length of confinement.

If isolation or quarantine is deemed necessary, an appropriate site for the confinement must be determined. The likely possibilities include: (1) a hospital; (2) a designated isolation facility; or (3) a private residence. Several factors will affect this determination, including availability of a room in a hospital, access to an isolation facility, suitability of private residence, patient preference, and likelihood that patient will cooperate.

C. Procedures for Implementation of Voluntary Isolation and Quarantine

1. Upon identification of a case or contact in need of isolation or quarantine, a PDPH field staff member (Disease Surveillance Investigator—DSI or Outreach Worker) is assigned to oversee the process and assume responsibility for interagency communications.

2. DSI will be responsible for determining the need to use personal protective equipment (PPE) when meeting with cases and contacts. PDPH will provide standard PPE, as indicated.

3. The DSI will meet with the case to review isolation and quarantine requirements, provide information, answer questions, and review the Isolation and Quarantine documents as follows:

    - Department Of Public Health Division Of Disease Control Order To Compel Isolation Or Quarantine For Suspect Influenza Infection (Pandemic Strain)
      ……*patient signature required*

    - Certificate Of Receipt Of Public Health Order To Compel Isolation Or Quarantine For Suspect Influenza Infection (Pandemic Strain)
      ……..*patient signature required*

    - Certificate Of Service Of Public Health Order To Compel Isolation Or Quarantine For Suspect Influenza Infection (Pandemic Strain)
      …….*PDPH employee signature required*

    - Instructions For Complying With Isolation Or Quarantine In The Home For Persons With Suspect Influenza Infection

4. For persons who will be confined in a personal residence, the DSI will assess the home environment to determine its suitability for isolation or quarantine.

This may be done over the telephone, or by site visit, at the discretion of the DSI.

5. For persons who will be confined in a hospital or specially designated facility, the DSI will contact the facility to assure availability of space.

6. If the case or contact requires transportation to the site where isolation or quarantine is to be implemented, the DSI will make suitable arrangements.

    - Cases (persons with symptoms) should be provided with a surgical type mask to help prevent transmission of infection while being transported. Transportation by privately owned vehicle is preferred; use of public transportation by a case is not permitted. Other options include public or private ambulance, PDPH vehicle, or other City vehicle.

    - Contacts (exposed persons without symptoms) may be transported by any means available, including public transportation.

7. Optimally, the case or contact will enlist the support of family and friends to supply essential goods during the isolation or quarantine, including provision of food and water, medicines, entertainment, etc.
   However, in the absence of a sound support structure, the DSI will identify the essential goods and services needed by the person to be confined, and will facilitate enrolling the person for these services, as follows:

    - Provision of food and water will be the responsibility of the Philadelphia Office of Adult Services, with support from Red Cross and enlisted community agencies

    - Provision of medical supplies will be the responsibility of PDPH Pharmacy Services

    - Provision of protective supplies, e.g., respiratory masks, will be the responsibility of the PDPH Division of Disease Control

    - Provision of a safe and secure environment will be the responsibility of the Philadelphia Police Department

8. The DSI will monitor and evaluate confined individuals daily by phone for health status and for compliance to the Health Order of Isolation or Quarantine. For persons in quarantine, signs and symptoms suggesting onset of influenza will be sought (fever plus respiratory symptoms). For patients in isolation, signs and symptoms suggesting influenza complications will be sought (pneumonia). Also, an evaluation of unmet needs for goods and services will be performed.

9. If the confined person requires formal medical follow-up or evaluation the DSI will coordinate necessary medical care and follow-up with the appropriate medical provider or will coordinate transfer to hospital for persons requiring acute care if needed.

10. The DSI will evaluate and coordinate with health and human service providers to assure continuity of services for people with disabilities and special case-management needs.

11. The DSI will coordinate with local social service providers, community-based organizations, block captains, neighborhood watch groups, and volunteer agencies to ensure faith-based services and social amenities, e.g. television, radio, Internet access, and reading materials.

12. The DSI will assemble written documentation for all aspects of isolation and quarantine.

D. Procedures for Implementation of <u>Involuntary</u> Isolation and Quarantine

1. Upon identification of a case or contact in need of isolation or quarantine, a PDPH field staff member (Disease Surveillance Investigator—DSI or Outreach Worker) is assigned to oversee the process and assume responsibility for interagency communications.

2. DSI will be responsible for determining the need to use personal protective equipment (PPE) when meeting with cases and contacts. PDPH will provide standard PPE, as indicated.

3. The DSI will meet with the case to review isolation and quarantine requirements, provide information, answer questions, and review the Isolation and Quarantine documents, as follows:

    - Department Of Public Health Division Of Disease Control Order To Compel Isolation Or Quarantine For Suspect Influenza Infection (Pandemic Strain)
      ……*patient signature required*

    - Certificate Of Receipt Of Public Health Order To Compel Isolation Or Quarantine For Suspect Influenza Infection (Pandemic Strain)
      ……..*patient signature required*

    - Certificate Of Service Of Public Health Order To Compel Isolation Or Quarantine For Suspect Influenza Infection (Pandemic Strain)
      …….*PDPH employee signature required*

- Instructions For Complying With Isolation Or Quarantine In The Home For Persons With Suspect Influenza Infection

4. For persons who refuse to comply with the procedures described above, involuntary isolation or quarantine must be compelled. The DSI will submit the name of the case/contact to the Law Department, requesting a Court Order to detain the person. The following form will be completed and submitted to Law through the PDPH.

    - Department Of Public Health Division Of Disease Control
      Request For Enforceable Order

5. The DSI will provide the Law Department with information for preparation of the affidavit and will make a recommendation as to the intended site for enacting the isolation or quarantine.

    - For persons who will be confined in a personal residence, the DSI will assess the home environment to determine its suitability for isolation or quarantine.

    - For persons who will be confined in a hospital or specially designated facility, the DSI will contact the facility to assure availability of space.

6. Upon receipt of a Court Order to compel isolation or quarantine, the DSI will provide to the Courts and/or Law enforcement agents with information for locating the case/contact for purposes of enforcing the Order.

7. Law enforcement, or suitable surrogate will enact transportation of the case/contact to the Court-ordered site of confinement. Cases (persons with symptoms) should be provided with a surgical type mask to help prevent transmission of infection while being transported. Transporting officials will be provided with suitable personal protective equipment. Contacts (exposed persons without symptoms) may be transported without special protective gear.

8. Optimally, the case or contact will enlist the support of family and friends to supply essential goods during the isolation or quarantine, including provision of food and water, medicines, entertainment, etc.
   However, in the absence of a sound support structure, the DSI will identify the essential goods and services needed by the person to be confined, and will facilitate enrolling the person for these services, as follows:

    - Provision of food and water will be the responsibility of the Philadelphia Office of Adult Services, with support from Red Cross and enlisted

community agencies

- Provision of medical supplies will be the responsibility of PDPH Pharmacy Services

- Provision of protective supplies, e.g., respiratory masks, will be the responsibility of the PDPH Division of Disease Control

- Provision of a safe and secure environment will be the responsibility of the Philadelphia Police Department

9. Enforcement of the Court Order of Isolation or Quarantine is a responsibility of law enforcement agencies, or their surrogate.

10. The DSI will monitor and evaluate confined individuals daily by phone for health status and for compliance to Isolation or Quarantine. For persons in quarantine, signs and symptoms suggesting onset of influenza will be sought (fever plus respiratory symptoms). For patients in isolation, signs and symptoms suggesting influenza complications will be sought (pneumonia). Also, an evaluation of unmet needs for goods and services will be performed.

11. If the confined person requires formal medical follow-up or evaluation the DSI will coordinate necessary medical care and follow-up with the appropriate medical provider or will coordinate transfer to hospital for persons requiring acute care if needed.

12. The DSI will evaluate and coordinate with health and human service providers to assure continuity of services for people with disabilities and special case-management needs.

13. The DSI will assemble written documentation for all aspects of isolation and quarantine.

V. CONCEPT OF OPERATIONS FOR LARGE-SCALE EVENT

A. Overview

In the event of a public health emergency that requires the isolation and quarantine of a large number of individuals, PDPH will coordinate with Philadelphia Emergency Management to activate the Emergency Operations Center (EOC). The EOC, or a subunit thereof, will coordinate the placement, monitoring, assessment and support of individuals and households identified for isolation or quarantine with internal staff, legal and law enforcement systems, healthcare providers and community-based partners.

B. EOC Responsibilities

1. Coordinate with the American Red Cross, other social service providers and businesses to provide food, shelter, and clothing on an emergency basis

2. Coordinate with local utility providers to ensure the ongoing provision of basic utilities (water, electricity, garbage collection, and heating or air-conditioning) to residences of persons isolated or quarantined

3. Coordinate with the appropriate community-based service providers to provide basic supplies (clothing, food, and laundry services) to individuals who are isolated or quarantined.

4. Coordinate access to telephone services with for individuals who are isolated or quarantined, if needed

5. Coordinate with Behavioral Health and local specialty providers to provide access to mental health and other psychological support, if needed.

6. Arrange with Child Care Resources for child care or local providers for elder care, if needed.

7. Coordinate with PEMA and FEMA to provide temporary financial assistance for persons isolated or quarantined, if needed, and to provide for disaster recovery.

8. Coordinate with local social service providers to ensure faith-based services and social amenities, e.g. television, radio, Internet access, and reading materials.

VI. ISOLATION AND QUARANTINE: RISK COMMUNICATION and PUBLIC INFORMATION

A. Overview

An outbreak of pandemic influenza requiring isolation and quarantine would attract intense, unrelenting media interest. In the early stages of an outbreak, information and facts may be incomplete, yet the media will press for credible information and eyewitness or victim stories. The public will want guidance and reassurance. Simplicity, credibility, verifiability and speed are required when communicating during the initial hours of an outbreak.

PDPH will ensure that the public and response partners are kept up-to-date at frequent intervals about the outbreak. It is essential that all agencies work with PDPH to "speak in one voice" and avoid delivering public messages that are inaccurate or contradictory. Both inaccurate information and delays in communication would likely result in the acceleration of rumors, loss of public confidence and increased panic, and possibly overwhelm first responders with "worried well". Risk communications will play a central role in the public's health, safety, level of concern, and most importantly, compliance with stopping the spread of disease.

B. Responsibilities

PDPH will take the lead in determining the timing and content of public health information and the affected agencies will verify facts and information with PDPH's communication team before releasing information independently.

Upon activation of the EOC, a joint information command will be established to coordinate public messages.

C. Actions

1. Verify the true magnitude of the situation as quickly as possible

2. Determine that communications about the situation as based on verified facts

3. Conduct notifications with Pennsylvania Department of Health communications office, hospital public information officers, and other affected county, state, and local government communications officers

4. Develop and disseminate to response partners timely messages, fact sheets, press releases and other information and obtain approvals.

5. Ensure that communications acknowledge the event with empathy, explain and inform the public, in simplest terms, about the risk, and, establish organization/spokesperson credibility, provide courses of action

6. Release information to the media, the public, and public health partners

7. Monitor, maintain, and make adjustments in message development and information dissemination for the remaining life of the crisis

ATTACHMENT 13

DEPARTMENT OF PUBLIC HEALTH
500 S. Broad Street
Philadelphia, PA 19146

CARMEN I. PARIS, MPH
Interim Health Commissioner

JOSEPH C. CRONAUER
Executive Deputy/Chief of Staff

CAROLINE C. JOHNSON, MD
Director, Division of Disease Control

INSTRUCTIONS FOR COMPLYING WITH ISOLATION OR QUARANTINE IN THE HOME FOR PERSONS WITH SUSPECT INFLUENZA INFECTION

To help prevent the spread of influenza in the community, you have been asked to impose isolation or quarantine procedures in your own home. *Isolation* refers to the separation and restricted movement of a person who is ill with influenza. *Quarantine* refers to the separation and restricted movement of a well person who has recently been exposed to influenza. (The latter person may be "incubating" influenza and therefore also able to spread infection.)

The following information will provide instructions on how to implement isolation or quarantine in your private home. In this document, *patient* refers to any person(s) who has been identified as needing isolation or quarantine, whether he/she presently has symptoms of influenza or not.

General Home Isolation/Quarantine Precautions

- The patient should not leave the home for the duration of the isolation period, except as necessary for follow-up medical care. When movement outside the home is necessary, the patient should wear a surgical type mask.

- Designate one person as the primary care provider for the patient. This person should assume responsibility for duties that involve direct contact with the patient or the patient's environment, such as assistance with meals, hygiene, or changing bed linens.

- Limit the number of persons in the household to those who are essential for patient support. Other household members should either be relocated or their contact with the patient minimized in the home. Persons who must remain in the home should limit contact with the patient as much as possible.

- Friends and relatives who do not have an essential need to be in the home should not visit. If an outsider must enter the home, they should avoid close contact with the patient and should wear a surgical type of mask.

Preventive Measures That The Patient Should Follow

- The patient should cover his/her nose and mouth with a tissue when coughing, sneezing, or blowing nose. Used tissues should be disposed of in a lined trash container. The patient should wash his/her hands after throwing the used tissue in the garbage.

- A separate bedroom and bathroom should be designated for exclusive use by the patient, if they are available. If not available, space in the home should be designated for restricted use by the patient, as much as possible. If multiple people in the home are sick, they can share sleeping and living space. But people who have no symptoms should not share space with persons who have symptoms.

- The patient should wash hands frequently throughout the day, using plenty of warm water and either bar or liquid soap.

- If possible, the patient should wear a surgical mask when other people are present. If the patient cannot wear a mask, persons in close contact with the patient should wear a mask. Masks should fit snugly around the face and should not be touched or handled during use. If masks will be re-used by persons in the home, procedures for identifying each person's mask and containing it between uses should be in place. The mask should be changed at least daily, or sooner if it gets wet or soiled.

Preventive Measures That Household Members Should Follow

- Household members should sleep in a separate room from the patient and avoid close contact such as kissing.

- Personal items such as toothbrushes, cigarettes or drinks should not be shared with the patient.

- All persons in the household should wash their hands frequently throughout the day, using plenty of warm water and either bar or liquid soap. It is especially important for household members to wash their hands after contact with the sick person, after touching body fluids (e.g., respiratory secretions, stool, urine, vomitus), or after touching potentially contaminated surfaces and materials (e.g., linen). Alcohol-based hand sanitizer can be used in addition to hand washing, or may be used if hands cannot be washed immediately after contact with infectious material.

- Persons in close contact with the patient should wear a mask. Masks should fit snugly around the face and should not be touched or handled during use. If masks will be re-used by persons in the home, procedures for identifying

each person's mask and containing it between uses should be in place. The mask should be changed at least daily, or sooner if it gets wet or soiled.

- Use of disposable gloves and other protective attire is not necessary when caring for the patient, unless extreme soilage is anticipated, such as from excessive respiratory secretions or vomiting. If gloves are worn, they are not intended to replace proper hand washing. Immediately after gloves are removed, they should be discarded and hand hygiene should be performed. Gloves must never be washed or reused.

Infection Control Measures (Cleanliness) in the Home

- Household surfaces that are frequently touched by the patient or are soiled with body fluids should be cleaned and disinfected with a household disinfectant at least daily. The person who performs the cleaning should wear rubber gloves.

- The bathroom used by the patient should be cleaned daily, if possible. Household utility gloves should be worn during the cleaning process.

Handling of Laundry, Trash, and Household Waste

- Laundry (e.g., bedding, towels and clothing) -- Towels and bedding should not be shared. 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. Hands should be washed after handling soiled laundry.

- Dishes and other eating utensils -- 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.

- Household waste -- Gloves, tissues, and other waste generated in the care of an influenza patient should be bagged and placed in another container for disposal with other household trash.

Medical Care and Doctor's Visits

- If the patient needs to go to the doctor's office, a family member or friend should drive them in a private car and they should not take public transportation (subway or bus). The doctor's office or clinic should be called to let them know that the patient has been diagnosed with influenza. If

possible, the patient should wear a surgical mask, and should go straight to the receptionist on arrival so that he/she can be put in a private room while waiting to see the doctor.

- Call "911" for any medical emergency.

- The patient should check and record his/her temperature every day. Report the temperature to the Health Department if it reaches 101 degrees or greater.

Discontinuing Isolation/Quarantine

- Do not discontinue isolation/quarantine precautions until advised to do so by a representative of the Department of Public Health.

- For patients who have been isolated due to illness, these guidelines should be followed for 10 days after the onset of illness. For patients who have been quarantined following exposure to influenza, these guidelines should be followed for 5 days following exposure, provided symptoms have not developed.[4]

Important Contact Information

For questions about isolation and quarantine, contact:

For assistance with meals, contact:

For assistance with transportation, contact:

For questions about your legal rights, contact:

[4] NOTE: The period of contagiousness and the incubation period for the pandemic strain cannot be known ahead of time. Once more information is available, the recommended timeframes may need to be changed.

ATTACHMENT 14

DEPARTMENT OF PUBLIC HEALTH
500 S. Broad Street
Philadelphia, PA 19146

CARMEN I. PARIS, MPH
Interim Health Commissioner

JOSEPH C. CRONAUER
Executive Deputy/Chief of Staff

CAROLINE C. JOHNSON, MD
Director, Division of Disease Control

DEPARTMENT OF PUBLIC HEALTH DIVISION OF DISEASE CONTROL
ORDER TO COMPEL ISOLATION OR QUARANTINE
FOR SUSPECT INFLUENZA INFECTION (PANDEMIC STRAIN)

_____ _____

Name (if a child, also provide parent name) *Date of Birth*

PURSUANT TO THE POWERS VESTED UNDER 35 P.S.§521.1 et seq., 28 Pa. Code § 27.81 et seq., and Philadelphia Health Code § 6-102 et seq., YOU ARE HEREBY ORDERED TO IMMEDIATELY DO THE FOLLOWING:

[ ] Undergo inpatient isolation or quarantine at a hospital site designated and approved by the City Department of Public Health until such time that you are determined to be non-communicable;

[ ] Undergo isolation or quarantine at a residential facility designated and approved by the City Department of Public Health until such time that you are determined to be non-communicable. The facility in which you shall be confined is
You have been provided with instructions on what you must do to comply with an isolation or quarantine order;

[ ] Undergo isolation or quarantine in your home until such time that you are determined to be non-communicable. You have been provided with instructions on what you must do to comply with an isolation or quarantine order.

Police and other security to help to effectuate this Order.

Please be advised that the City may seek further remedy, including Common Pleas Court Order, if necessary, to effectuate this Order. Failure to obey this Order and disobeying a further Court Order may result in fines, including possibly up to 180 days of imprisonment. You have a right to seek advice and/or representation of legal counsel with regard to this as well as any proceeding. Please also be advised that you

have a right to appeal this Order at any time during the course of your isolation/quarantine and that if you wish to appeal this Order, you must state the specific reason(s) for your appeal in writing and transmit to the Health Commissioner.

Pursuant to the Philadelphia Health Code § 6-104 et seq., failure to comply with this Health Department Order may result in fines being imposed up to $300 and imprisonment for up to 90 days.

Name of Person Presenting Order (Printed)	*Signature of Person Presenting Order*	*Date*

ATTACHMENT 15

DEPARTMENT OF PUBLIC HEALTH
500 S. Broad Street
Philadelphia, PA 19146

CARMEN I. PARIS, MPH
Interim Health Commissioner

JOSEPH C. CRONAUER
Executive Deputy/Chief of Staff

CAROLINE C. JOHNSON, MD
Director, Division of Disease Control

CERTIFICATE OF RECEIPT OF PUBLIC HEALTH ORDER TO COMPEL ISOLATION OR QUARANTINE FOR SUSPECT INFLUENZA INFECTION (PANDEMIC STRAIN)

Names of Person for Isolation / Quarantine	**Date of Birth**	**Relationship to Signer** (e.g. self, child, spouse, etc)

I, _____ , hereby verify that I have received a
Print Name
true and correct copy of the attached Public Health Order to Compel Isolation or Quarantine for Suspect Influenza Infection (Pandemic Strain) for a family member and/or myself. Also, I have been provided with instructions on what I must do to comply with an isolation or quarantine order. This Health Order applies to the household members that are named above.

_____ _____
Signature or Person Receiving Health Order Date

_____
Address

☐ **I will comply this order of isolation / quarantine.**

☐ **I will *not* comply with this order of isolation / quarantine.**

ATTACHMENT 16

DEPARTMENT OF PUBLIC HEALTH
500 S. Broad Street
Philadelphia, PA 19146

CARMEN I. PARIS, MPH
Interim Health Commissioner

JOSEPH C. CRONAUER
Executive Deputy/Chief of Staff

CAROLINE C. JOHNSON, MD
Director, Division of Disease Control

PHILADELPHIA
Department of Public Health

CERTIFICATE OF SERVICE OF PUBLIC HEALTH ORDER TO COMPEL ISOLATION OR QUARANTINE FOR SUSPECT INFLUENZA INFECTION (PANDEMIC STRAIN)

RE: _____ _____
Name of Person Served *SSN*

I, _____, ~~hereby~~ verify, in full knowledge and
Print Name
awareness of the penalties pertaining to 18 Pa C.S.A. §4904, relating to falsification to authorities, that I served a true and correct copy of the attached Public Health Order to Compel Isolation or Quarantine for Suspect Influenza Infection on the above named individual on this date, _____ , at this location _____ .
Month/Day/Year *Place of Service*

_____ _____
Signature of Person presenting Order Position of Person presenting Order

_____ _____
Work Address Work Telephone

ATTACHMENT 16

DEPARTMENT OF PUBLIC HEALTH
500 S. Broad Street
Philadelphia, PA 19146

CARMEN I. PARIS, MPH
Interim Health Commissioner

JOSEPH C. CRONAUER
Executive Deputy/Chief of Staff

CAROLINE C. JOHNSON, MD
Director, Division of Disease Control

DEPARTMENT OF PUBLIC HEALTH DIVISION OF DISEASE CONTROL REQUEST FOR ENFORCEABLE ORDER

Patient's Name (Last, First)

Address (Number, Street and Zip code)

Date of Birth (mo-day-yr)

I request an enforceable order to compel isolation or quarantine for the above-named patient. I certify below that I have tried to encourage this patient to comply with voluntary isolation or quarantine, and that I have provided the patient with written instructions explaining what the patient must do to comply with an isolation or quarantine order. I have explained to the patient that influenza from a pandemic strain is a highly communicable infection. The isolation or quarantine has been ordered to protect persons with whom the patient comes in contact, and to help prevent spread of this infection throughout Philadelphia.

This patient has repeatedly demonstrated that he or she will not, or cannot, comply with proper isolation or quarantine procedures despite counseling.

The isolation or quarantine should not be discontinued until the patient is judged by the Philadelphia Department of Public Health to no longer be a threat to others.

Requestor of enforceable order (sign and print name)

Approved (sign and print name)

Attachment 17

Evaluation of Homes and Facilities for Isolation and Quarantine

Isolation Facilities

Home isolation

Ideally, persons who meet the criteria for a case of pandemic influenza and who do not require hospitalization for medical reasons should be isolated in their homes. The home environment is less disruptive to the patient's routine than isolation in a hospital or other community setting. If feasible—especially during the earliest stages of a pandemic—a home being considered as an isolation setting should be evaluated by an appropriate authority, which could be the patient's physician, health department official, or other appropriate person to verify its suitability. The assessment should center on the following minimum standards for home isolation of an influenza patient:

Infrastructure

- Functioning telephone
- Electricity
- Heating, ventilation, and air conditioning (HVAC)
- Potable water
- Bathroom with commode and sink
- Waste and sewage disposal (septic tank, community sewage line)

Accommodations

- Ability to provide a separate bedroom for the influenza patient
- Accessible bathroom in the residence; if multiple bathrooms are available, one bathroom designated for use by the influenza patient

Resources for patient care and support

- Primary caregiver who will remain in the residence and who is not at high risk for complications from influenza disease
- Meal preparation
- Prescription refills
- Laundry
- Banking
- Essential shopping, including for pet food
- Social diversion (e.g., television, radio, Internet access, reading materials)
- Masks, tissues, hand hygiene products, and information on infection control procedures
- Educational material on proper waste disposal

Isolation in a community-based facility

When persons requiring isolation cannot be accommodated either at home or in a healthcare facility, a community-based isolation facility will be required. The availability of a community-based facility will be particularly important during a large outbreak.

Much of the work in identifying and evaluating potential sites for isolation should be conducted in advance of an outbreak as part of preparedness planning. Each jurisdiction should assemble a team (including infection control specialists, public health authorities, engineers, sanitation experts, and mental health specialists) to identify appropriate locations and resources for community influenza isolation facilities, establish procedures for activating them, and coordinate activities related to patient management. The team should consider the use of both existing and temporary structures. Options for existing structures include community health centers, nursing homes, apartments, schools, dormitories, and hotels. Options for temporary structures include trailers, barracks, and tents. Considerations include:

Basic infrastructure requirements

- Meets all local code requirements for a public facility
- Functioning telephone system
- Electricity
- Heating, ventilating, and air conditioning (HVAC)
- Potable water
- Bathroom with commode and sink
- Waste and sewage disposal (septic tank, community sewage line)
- Multiple rooms for housing ill patients (individual rooms are preferred)

Access considerations

- Proximity to hospital
- Parking space
- Ease of access for delivery of food and medical and other supplies
- Handicap accessibility
- Basic security

Space requirements

- Administrative offices
- Offices/areas for clinical staff
- Holding area for contaminated waste and laundry
- Laundry facilities (on- or off-site)
- Meal preparation (on- or off-site)

Social support resources

- Television and radio
- Reading materials

To determine priorities among available facilities, consider these features:

- Separate rooms for patients or areas amenable to isolation of patients with minimal construction
- Feasibility of controlling access to the facility and to each room
- Availability of potable water, bathroom, and shower facilities
- Facilities for patient evaluation, treatment, and monitoring
- Capacity for providing basic needs to patients
- Rooms and corridors that are amenable to disinfection
- Facilities for accommodating staff
- Facilities for collecting, disinfecting, and disposing of infectious waste
- Facilities for collecting and laundering infectious linens and clothing
- Ease of access for delivery of patients and supplies
- Legal/property considerations

Additional considerations include:

- Staffing and administrative support
- Training
- Ventilation and other engineering controls
- Ability to support appropriate infection control measures
- Availability of food services and supplies
- Ability to provide an environment that supports the social and psychological well-being of patients
- Security and access control
- Ability to support appropriate medical care, including emergency procedures
- Access to communication systems that allow for dependable communication within and outside the facility
- Ability to adequately monitor the health status of facility staff

Quarantine Facilities

Home quarantine

A person's residence is generally the preferred setting for quarantine. As with isolation, home quarantine is often least disruptive to a person's routine. Because persons who have been exposed to influenza may need to stay in quarantine for as long as 10 days or possibly longer, depending on the characteristics of the virus, it is important to ensure that the home environment meets the individual's ongoing physical, mental, and medical needs. An evaluation of the home for its suitability for quarantine should be performed, ideally before the person is placed in quarantine. This evaluation may be performed on site by a health official or designee. However, from a practical standpoint, it may be

more convenient to evaluate the residence through the administration of a questionnaire to the individual and/or the caregiver. Factors to be considered in the evaluation include:

- Basic utilities (water, electricity, garbage collection, and heating or air-conditioning as appropriate)
- Basic supplies (clothing, food, hand-hygiene supplies, laundry services)
- Mechanism for addressing special needs (e.g., filling prescriptions)
- Mechanism for communication, including telephone (for monitoring by health staff, reporting of symptoms, gaining access to support services, and communicating with family)
- Accessibility to healthcare workers or ambulance personnel
- Access to food and food preparation
- Access to supplies such as thermometers, fever logs, phone numbers for reporting symptoms or accessing services, and emergency numbers (these can be supplied by health authorities if necessary)
- Access to mental health and other psychological support services.

Quarantine in a community-based facility

Although the home is generally the preferred setting for quarantine, alternative sites for quarantine may be necessary in certain situations. For example, persons who do not have a home situation suitable for this purpose or those who require quarantine away from home (e.g. during travel) will need to be housed in an alternative location. Because persons who have been exposed to influenza may require quarantine for as long as 10 days, it is important to ensure that the environment is conducive to meeting the individual's ongoing physical, mental, and medical needs. Ideally, one or more community-based facilities that could be used for quarantine should be identified and evaluated as part of influenza preparedness planning. The evaluation should be performed on site by a public health official or designee. Additional considerations, beyond those listed above for home quarantine, include:

- Adequate rooms and bathrooms for each contact
- Delivery systems for food and other needs
- Staff to monitor contacts at least daily for fever and respiratory symptoms
- Transportation for medical evaluation for persons who develop symptoms
- Mechanisms for communication, including telephone (for monitoring by health staff, reporting symptoms, gaining access to support services, and communicating with family)
- Adequate security for those in the facility

Services for removal of waste.

No special precautions for removal of waste are required as long as persons remain asymptomatic.

Attachment 18

Frequently Asked Questions about Quarantine

If an influenza pandemic occurs, will my community be quarantined?
Community-wide quarantine is only one of a spectrum of actions that may be considered during an influenza pandemic in the United States. Although rapid control is likely to require bold and swift action, measures that are less drastic than legally enforced quarantine may suffice, depending on the epidemiologic characteristics of the pandemic. For example, active monitoring of cases without activity restrictions may be adequate when most cases are either imported or have clear epidemiologic linkages at the time of initial evaluation. When the epidemiology of the outbreak indicates a need for stronger measures, jurisdictions can adopt a voluntary quarantine approach and reserve compulsory measures for only extreme situations. When an outbreak progresses to include large numbers of cases for which no epidemiologic linkages can be identified, community-level interventions may become necessary. Even at this stage, however, measures designed to increase social distance, such as snow days, may be preferred alternatives to quarantine. Wider use of quarantine is generally reserved for situations in which all other control measures are believed to be ineffective.

The choice of containment measures requires frequent and ongoing assessment of an outbreak and evaluation of the effectiveness of existing control measures. Officials must be prepared to make decisions based on limited information and then modify those decisions as additional information becomes available.

Does the effectiveness of containment measures require 100% compliance?
No. Containment measures, including quarantine, are effective even if compliance is less than 100%. Although health officials should strive for high compliance, even partial or "leaky" quarantine can reduce transmission. Therefore, strict enforcement is not always needed; in most cases, jurisdictions can rely on voluntary cooperation. The incremental benefit of quarantine approaches a maximum at a compliance rate of approximately 90%, with little additional benefit from higher rates of compliance. Therefore, containment measures can be important components of the response to a communicable disease outbreak even when compliance is not 100%.

Does "quarantine" always mean using a legal order to restrict someone's activity?
No. The term "quarantine" is often defined narrowly to refer to the legally mandated separation of well persons who have been exposed to a communicable disease from those who have not been exposed. Although the precise legal definition of quarantine may differ from jurisdiction to jurisdiction, when used clinically or programmatically, quarantine may be defined more broadly to include all interventions, both mandatory and voluntary, that restrict the activities of persons exposed to a communicable disease. Therefore, whenever an exposed person is placed under a regimen of monitoring that includes an activity restriction, even when those restrictions are voluntary, the person is said to be under quarantine.

Must quarantine be mandatory to be effective?
Although the federal government and nearly all states have the basic legal authority to place persons exposed to certain communicable diseases under quarantine and enforce the required restrictions on activity, use of this authority may not always be necessary or practical. Previous experiences with the use of quarantine, including those during the 2003 SARS outbreak, suggest that the majority of persons comply voluntarily with requests from health authorities to remain in quarantine and observe the recommended activity restrictions. In the event voluntary measures are not successful, it may be necessary to implement mandatory containment measures.

Does being placed in quarantine increase a person's risk for acquiring disease?
One of the fundamental principles of modern quarantine is that persons in quarantine are to be closely monitored so that those who become ill are efficiently separated from those who are well. A second principle is that persons in quarantine should be among the very first to receive any available disease-prevention interventions. Adherence to these two principles of modern quarantine should prevent an increase in risk for acquiring disease while in quarantine.

Is quarantine really necessary if everyone who develops symptoms is rapidly placed in isolation?
Although theoretically true, it would be unrealistic to believe that even the most efficient system for initiation of isolation will minimize delays to the extent required to prevent transmission. Among the factors contributing to delays in recognition of symptoms are the insidious nature of disease onset and denial that symptoms have developed. Early in the 2003 SARS outbreak in Singapore, the average delay from onset of symptoms to initiation of isolation was 7 days. Officials were able to reduce this delay only to 3 days, even with an aggressive public awareness campaign on the importance of symptom recognition and isolation.

Quarantine helps to reduce transmission associated with delays in isolation in two ways. First, quarantine enables health officials to quickly locate symptomatic persons who should be placed in isolation. Second, although quarantine locations may not be as efficient as isolation facilities in preventing transmission, quarantine reduces the number of persons who might be exposed while awaiting transfer to an isolation facility. If quarantine was not used, symptomatic and infectious persons could move about freely in public places, potentially exposing large numbers of additional persons and thereby fueling the outbreak.

Is quarantine useful only for diseases that are spread by the airborne route?
No. Quarantine simply refers to the separation and restriction of activity of persons exposed to a communicable disease who are not ill. It is designed to minimize interactions between those exposed to a disease and those not yet exposed. As such, quarantine can be used for any disease that is spread from person to person. In practice, however, because of the activity restrictions associated with quarantine, the

intervention is generally reserved for diseases like SARS or pandemic influenza that are easily and rapidly spread from person to person. The indication for quarantine for diseases purely transmitted by the airborne route is clear. However, this tool can also be useful where transmission can occur through close personal contact with secretions or objects contaminated by an ill person. Smallpox is an excellent example of a disease where quarantine can be effective in controlling spread although transmission may occur by means other than the airborne route.

Will the public accept the use of quarantine?

Yes. The negative connotations associated with quarantine likely stem from its misuse or abuse in the past. Although inappropriate use of quarantine, either voluntary or mandatory, would not and should not be accepted by the public, efforts should be made to gain public acceptance when use of this measure is indicated. Experiences with the use of quarantine during the SARS outbreaks of 2003 suggest that public acceptance of quarantine may be greater than previously thought. For example, during the 2003 SARS outbreak in Canada, almost all persons asked to observe quarantine restrictions did so willingly, with only a small number requiring a legal order to gain cooperation. In all cases, cooperation and acceptance was achieved through clear and comprehensive communication with the public about the rationale for use of quarantine.

Attachment 19 – Public Health Communications

Background Information for Developing Communications Messages about Pandemic Influenza

The language, timing, and detail of key messages will depend on a number of factors, including demographics and group psychological profiles of intended audiences, available or preferred media, and urgency. However, the following points may help communications professionals adapt appropriate health messages related to an influenza pandemic:

- By definition, pandemic influenza will result from a new influenza A subtype against which humans have limited or no natural immunity. Pandemic influenza virus infection therefore is likely to cause serious, possibly life-threatening disease in greater numbers, even among previously healthy persons, than occurs during seasonal interpandemic influenza outbreaks.
- Global influenza pandemics are unpredictable events, presenting challenges for communication.
- Global and domestic surveillance, coupled with laboratory testing, are vital to identifying new influenza A subtypes virus strains with pandemic potential.
- The threat of a pandemic may be heightened when a highly pathogenic avian influenza A virus spreads widely among birds and infects other animals, including humans. The strains can mutate or adapt and give rise to a strain that spreads easily from person to person in a sustained manner, causing a pandemic.
- Illness and death may be much higher during a pandemic than during annual seasonal community influenza outbreaks; pandemics can also occur in waves over several months.
- It could take many months to develop an effective pandemic influenza vaccine and immunize substantial numbers of people. Antiviral medications for treatment or prevention of pandemic influenza could have an important interim role, but may also be in short supply. Consequently, practical and common sense measures, such as frequent hand washing, covering your mouth and nose while sneezing or coughing, and staying home from work or school if you are ill with influenza-like illness, may be important to help prevent the spread of pandemic influenza.
- Although travel restrictions and isolation and quarantine procedures may limit or slow the spread of pandemic influenza in its earliest stages, these measures are likely to be much less effective once the pandemic is widespread. Alternative population containment measures (e.g., cancellation of public events) may be necessary.

- The United States is preparing for pandemic influenza by:
    - Developing a coordinated national strategy to prepare for and respond to an influenza pandemic
    - Educating healthcare workers about pandemic influenza diagnosis, case management, and infection control practices
    - Refining global and domestic pandemic influenza surveillance systems
    - Developing guidelines for minimizing transmission opportunities in different settings
    - Expanding supplies of antiviral medications in the Strategic National Stockpile and establishing guidelines for their use
    - Developing candidate vaccines and establishing plans for the rapid development, testing, production, and distribution of vaccines that may target specific pandemic influenza strains
    - Developing materials that states and localities can adapt as guidance for use during an influenza pandemic.

Attachment 20

Resources for Sample Pandemic Influenza Communications Messaging

PDPH will reference many communications materials and resources throughout all pandemic phases. Many of these resources will made available at appropriate times by HHS on the www.pandemicflu.gov website. HHS will disseminate others using the Health Alert Network (HAN), Epidemic Information Exchange (Epi-X), and other channels for health professionals. The following list offers a sample of the types of communications materials that PDPH may reference. This list is not inclusive and may change depending on the nature and circumstances of a specific influenza pandemic threat.

- Pandemic Influenza Preparedness in Philadelphia
  www.phila.gov/health
- Pandemic Influenza Fact Sheet
  http://www.pandemicflu.gov/general/
- Avian Influenza Fact Sheet
  http://www.cdc.gov/flu/avian/gen-info/facts.htm
- Guidance to Travelers
  http://www.pandemicflu.gov/travel/
- Interim Guidance for U.S. Citizens Living Abroad
  http://www.cdc.gov/travel/other/avian_flu_ig_americans_abroad_032405.htm
- Sample CDC News Conference Transcript
  http://www.cdc.gov/od/oc/media/transcripts/t040127.htm
- Managing Anxiety in Times of Crisis
  http://mentalhealth.samhsa.gov/cmhs/managinganxiety/default.asp

HHS and its agencies will make resources available to state and local health professionals to assist with their communications responsibilities during Interpandemic, Pandemic Alert, and Pandemic Periods. Because information may change frequently, PDPH staff will regularly check the www.pandemicflu.gov and www.cdc.gov/flu/ websites for up-to-date materials. Communications professionals at PDPH will be able to localize and download most resources, including posters, brochures, fact sheets, media kits, webcasts, and archived satellite broadcasts. Much of the material will also be available through e-mail or mail orders. Material will include color and black and white versions for healthcare and public health professionals and for public audiences, as well as specific versions for low-literacy populations. As appropriate and feasible, HHS will provide material in a variety of languages.

One of the most comprehensive and practical resources for communications professionals is the *CDCynergy* CD-ROM set produced by CDC. *Emergency Risk Communication CDCynergy* is applicable to communicating before and

during an influenza pandemic. Selected PDPH staff have attended a training overview of the *CDCynergy 3.0* disk. Information about *CDCynergy* is available on CDC's website at http://www.cdc.gov/communication/cdcynergy.htm. *Communicating in a Crisis: Risk Communication Guidelines for Public Officials* is available on SAMHSA's website at http://www.riskcommunication.samhsa.gov/index.htm. Bound copies can be ordered online at no charge from SAMHSA's National Mental Health Information Center (http://store.mentalhealth.org/publications/ordering.aspx) or by calling 1-800-789-2647. This pocket reference describes basic skills and techniques for clear, effective crisis communications and information dissemination, and provides some of the tools of the trade for media relations.

Additional Communication Resources

- WHO Outbreak Communication Guidelines http://www.who.int/infectious-disease-news/IDdocs/whocds200528/whocds200528en.pdf
- WHO Outbreak Communication – Handbook for Journalists: Influenza Pandemic http://www.who.int/csr/don/Handbook_influenza_pandemic_dec05.pdf

Other Resources

- National Vaccine Program Office Pandemic Influenza Website http://www.HHS.gov/nvpo/pandemics/
- WHO Pandemic Influenza Website http://www.who.int/csr/disease/influenza/pandemic/en/
- MMWR Guide for Influenza http://www.cdc.gov/mmwr/mguide_flu.html
- Epidemic Information Exchange (Epi-X) http://www.cdc.gov/mmwr/epix/epix.html
- Health Alert Network (HAN) http://www.bt.cdc.gov/documentsapp/HAN/han.asp; and http://www.phppo.cdc.gov/han
- Centers for Public Health Preparedness www.asph.org/acphp

  This website provides locating information and links to the 40 centers involved in this network. The centers form a unique partnership that includes accredited schools of public health, dentistry schools, medical schools, veterinary schools, and state and local health departments. Together, the partners provide a countrywide defense system through the preparation of front-line public health workers and first responders.

Vaccine-Specific Sites and Resources

- Vaccine Adverse Events Reporting System (VAERS)
  http://vaers.hhs.gov/ or call 1-800-822-7967

Surveillance Sites and Resources

- CDC Influenza Surveillance Data
- http://www.cdc.gov/flu/weekly/fluactivity.htm
  EISS: European Influenza Surveillance Scheme
- http://www.eiss.org/index.cgi
  EuroGROG: International Influenza Surveillance
- http://www.eurogrog.org/index.cgi
  World Health Organization (WHO): Flunet
- http://rhone.b3e.jussieu.fr/flunet/www/

Outbreak Sites

- Animal and Plant Health Inspection Service (APHIS), Veterinary Services, U.S. Department of Agriculture (USDA)
  http://www.aphis.usda.gov/
  APHIS coordinates efforts to prepare for and respond to outbreaks of exotic animal diseases, including highly pathogenic avian influenza. Results of surveillance for influenza A viruses in avian species in the United States are reported each year by the National Veterinary Services Laboratories in the Proceedings of the U.S. Animal Health Association Annual Meeting.
- World Health Organization Disease Outbreak Site
  The World Health Organization (WHO): disease outbreaks

Research Sites

- National Institute of Allergy and Infectious Diseases (NIAID)
  http://www.niaid.nih.gov/dmid/influenza/pandemic.htm
- USDA Agricultural Research Service
  http://www.ars.usda.gov/main/main.htm
  The ARS' Southeast Poultry Research Laboratory publishes information on avian influenza research and contacts for further information.
- Manufacture and Licensing of Influenza Vaccine
  Center for Biologics Evaluation and Research (CBER), FDA
  http://www.fda.gov/cber/
  CBER plays a critical role in the manufacture and licensing of influenza vaccine.
- WHO Global Influenza Preparedness Plan
  http://www.who.int/csr/resources/publications/influenza/WHO_CDS_CSR_GIP_2005_5/en/index.html
- Center for Infectious Disease Research & Policy - University of Minnesota
  http://www.cidrap.umn.edu/cidrap/content/influenza/avianflu/index.html

Attachment 21

World Health Organization Pandemic Phases

	Humans	**Animals**
Interpandemic Period		
o Phase 1	No new subtypes detected	Animals may have virus that can cause human infections
o Phase 2	No new subtypes detected	Circulation of animal virus subtype that poses risk of human disease
Pandemic Alert Period		
o Phase 3	Human infections; no human-to-human spread, or only rare instances among close contact	
o Phase 4	Small clusters with limited human-to-human transmission, localized spread	
o Phase 5	Large clusters, but localized human to human transmission, virus better adapted to humans	
Pandemic Period		
o Phase 6	Pandemic	