February 2006

Pandemic INFLUENZA Plan

New York State Department of Health

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Pandemic Influenza Plan
February 7, 2006

TABLE OF CONTENTS

Introduction

Pandemic influenza occurs when a novel influenza virus appears that causes readily transmissible human illness against which most of the population lacks immunity. Several features set pandemic influenza apart from other public health emergencies or community disasters:

- Influenza pandemics are expected but arrive with very little warning.
- Outbreaks can be expected to occur simultaneously throughout much of the U.S., preventing sharing of human and material resources that usually occur in the response to other disasters. Localities should be prepared to rely on their own resources to respond. The effect of pandemic influenza on individual communities will be relatively prolonged (weeks to months) in comparison to disasters of shorter duration.
- Because of widespread susceptibility to a pandemic influenza strain, the number of persons affected will be high.
- Health care workers and other first responders will be at higher risk of exposure and illness than the general population, further straining the health care system.
- Effective preventive and therapeutic measures, including vaccine and antiviral agents, are likely to be delayed and in short supply.
- Widespread illness in the community could result in sudden and potentially significant shortages of personnel in other sectors that provide critical public safety services.

The purpose of the *New York State Department of Health Pandemic Influenza Plan* is to assist public health officials and health care providers in preparing for and responding rapidly and effectively to an influenza pandemic, consistent with national guidance. The New York State guidance document was developed using the U.S. Department of Health and Human Services' *Pandemic Influenza Plan*, issued November 2005 (http://www.dhhs.gov/nvpo/pandemicplan/). Part two of the federal plan, *Public Health Guidance for State and Local Partners*, outlined the key planning and preparedness issues to be considered by state and local public health officials.

The New York State plan is divided into 13 sections:

1) Command and Control,
2) Surveillance and Laboratory Testing,
3) Healthcare Planning,
4) Infection Control,
5) Clinical Guidelines,
6) Vaccine Procurement, Distribution and Use,
7) Antiviral Medication Procurement, Distribution and Use,
8) Travel-Related Disease Control and Community Prevention,
9) Communications,
10) Training and Education,
11) Workforce Support,
12) Highly Pathogenic H5N1 Avian Influenza in Non-Human Animals, and
13) Public Health Preparedness and Informatics.

Each section includes a description of the activities to be undertaken by pandemic period, using the World Health Organization's classification system (Table below). Activities are designated as to whether they are the role of the state health department, local health department and/or providers and public health partners.

World Health Organization Pandemic Periods/Phases

Interpandemic Period	**Phase 1**	No new influenza virus subtypes in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered to be low.
	Phase 2	No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.
Pandemic Alert Period	**Phase 3**	Human infection(s) with a new subtype, but no human-to-human spread, or at most rare instances of spread to a close contact.
	Phase 4	Small clusters(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well adapted to humans.
	Phase 5	Larger cluster(s) but human-to-human spread is still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).
Pandemic Period	**Phase 6**	Pandemic phase: increased and sustained transmission in general population.

Pandemic influenza planning and preparedness activities should build upon response planning efforts for other emergencies, such as a smallpox recurrence, chemical spills, and natural disasters. In addition, efforts to prepare for an influenza pandemic will significantly enhance New York State's ability to respond to other emergencies and disasters.

This version of the New York State Department of Health's Pandemic Influenza Plan reflects currently available scientific knowledge regarding the potential for an influenza pandemic, the expected ramifications on New Yorkers, and the most effective strategies and tactics to support our response. **It is important to understand that this plan will be updated and revised regularly as additional information and guidance become available.** Also, during a pandemic, guidance in this document may change. For

example, at this time, it is realistic to expect that there will be limits on availability of vaccine and antiviral medications, and most people will not have access to these resources. This fact may change and result in modifications to the current plan. Other revisions to the plan may cover imposition of alternate standards of patient care in response to problems of surge capacity or depletion of essential medical supplies during a pandemic.

The document and any revisions will be available on the public website of the New York State Department of Health at www.nyhealth.gov. It is our intention to encourage all New Yorkers to fully familiarize themselves with the contents of the plan. Redactions, if any, will apply only to information that must be kept confidential to protect public security.

Acronyms

AE	Adverse Events
ACIP	Advisory Committee on Immunization Practices
AIIR	Airborne Infection Isolation Room
ARDS	Acute Respiratory Distress Syndrome
BCDC	NYSDOH Bureau of Communicable Disease Control
BHNSM	NYSDOH Bureau of Healthcom Network Systems Management
BHAE	NYSDOH Bureau of HIV/AIDS Epidemiology
BNE	NYSDOH Bureau of Narcotics Enforcement
BSTDC	NYSDOH Bureau of Sexually Transmitted Disease Control
BTBC	NYSDOH Bureau of Tuberculosis Control
CDC	Centers for Disease Control and Prevention
CDESS	Communicable Disease Electronic Surveillance System
CDMS	Clinic Data Management System
CERC	Crisis Emergency Risk Communication
CLIMS	Clinical Laboratory Information Management System
CMRTS	Counter Measure Resource Tracking Systems
DAV	Data Analysis and Visualization
EAS	Emergency Alert System
ED	Emergency Department
EDB	Executive DashBoard
ECLRS	NYSDOH Electronic Clinical Laboratory Reporting System
EIP	Emerging Infections Program
EMS	Emergency Medical Services
EPA	Environmental Protection Agency
ESAR-VHP	Emergency System for the Advance Registration of Volunteer Health Professionals
FDA	Food and Drug Administration
FEMA	Federal Emergency Management Agency
GIS	Geographical Information System
HAN	Health Alert Network
HERDS	Healthcare Emergency Response Data System
HHA	Home Health Agency
HHS	U.S. Department of Health and Human Services
HIN	Health Information Network
HOC	Health Operations Center
HPAI	Highly Pathogenic Avian Influenza
HPN	Health Provider Network
HSB	NYSDOH Healthcom Services Bureau
IATA	International Air Transport Association
ICP	Infection Control Professional
ICS	Incident Command System
ILI	Influenza-like illness
IMS	Public Health and Health Care Incident Management System

Acronyms (cont.)

IND	Investigational New Drug
IHANS	Integrated Health Alerting and Notification System
IRB	Institutional Review Board
ISHSG	NYSDOH Information Systems and Health Statistics Group
IVR	Interactive Voice Response
JIC	Joint Information Center
LAIV	Live Attenuated Influenza Vaccine
LHD	Local Health Department
LMP	Licensed Medical Professional
LTCF	Long Term Care Facility
MAA	Mutual Aid Agreement
MOU	Memoranda of Understanding
MRC	Medical Reserve Corps
NHSN	National Healthcare Safety Network
NORA	Nosocomial Outbreak and Reporting Application
NREVSS	National Respiratory and Enteric Virus Surveillance System
NYCDOHMH	New York City Department of Health and Mental Hygiene
NYSDAM	New York State Department of Agriculture and Markets
NYSDEC	New York State Department of Environmental Conservation
NYSDOH	New York State Department of Health
OEM	Office of Emergency Management
OSPH	NYSDOH Office of Science and Public Health
PAG	NYSDOH Public Affairs Group
PHL	Public Health Law
PHPP	Public Health Preparedness Program
PIO	Public Information Office
POD	Point of Dispensing
POD SOG	Point of Dispensing Standard Operations Guide
PPE	Personal Protective Equipment
PWSA	Public Web Site Administration
SDF	Secure Discussion Forum
SEMO	New York State Emergency Management Office
SNS	Strategic National Stockpile
SO	Surveillance Officer
SPN	United States Influenza Sentinel Provider Network
USDA	United States Department of Agriculture
VAERS	Vaccine Adverse Events Reporting System
VC	Video Conference
VIS	Vaccine Information Statement
WHO	World Health Organization

Section 1: Command and Control

I. Overview

II. Objectives

III. Command Structure and Process

IV. Interagency Taskforce on Influenza Preparedness

V. Legal Authorities

VI. Activities by Pandemic Period

Appendices:

- 1-A: New York State Department of Health Public Health and Health Care Incident Management System
- 1-B: Quarantine Powers of Local Health Officers and Local Boards of Health
- 1-C: School Closures during an Emergency
- 1-D: Business Closures during an Emergency
- 1-E: Suspension of Public Meetings during an Emergency
- 1-F: Use of Unlicensed Volunteers to Administer Influenza Vaccine
- 1-G: A Guide to New York State Laws Governing Public Health Emergency Preparedness and Response
- 1-H: Summary of Public Officers Law Coverage Regarding Volunteers

I. Overview

This section describes the New York State Department of Health's (NYSDOH) Pandemic Influenza Command and Control structure and process. Because the response to pandemic influenza will use the same command and control system developed for other public health emergencies, this section highlights activities specific to pandemic influenza.

II. Objectives

To describe:

- The command structure and decision making process.
- The process for establishing the Interagency Taskforce on Influenza Preparedness.
- The legal issues associated with a pandemic outbreak.
- Roles and responsibilities by pandemic period.

III. Command Structure and Process

During emergencies, NYSDOH coordinates response activities by using an incident management system, superimposed over the normal programmatic chain of command (see Appendix 1-A: NYSDOH Public Health and Health Care Incident Management System). In emergencies, the NYSDOH's Public Health Preparedness Program manages the traditional functions of incident command (Command, Planning, Operations, Logistics, Finance and Administration) within NYSDOH's existing systems to facilitate an integrated and comprehensive response. Several staff may be identified for each incident command role to accommodate the length of the pandemic period.

IV. Interagency Taskforce on Influenza Preparedness

Before a pandemic occurs, an Interagency Taskforce on Influenza Preparedness will be formed by the New York State Disaster Preparedness Commission. The Taskforce will delineate agency roles and responsibilities to implement the State's Pandemic Influenza Plan and ensure each agency has a plan for continuity of operations during a pandemic.

When a pandemic occurs, the Governor may activate the Taskforce after consultations with NYSDOH and agency representatives of the Disaster Preparedness Commission. If a decision is made to activate, the State Emergency Management Office (SEMO) will coordinate the taskforce with NYSDOH as the lead agency.

V. Legal Authorities

When a novel influenza virus or pandemic occurs, there are several steps that may be taken by the State to prevent or stem the spread of illness.

- The Commissioner, pursuant to 10 NYCRR § 2.1, may designate influenza (both cases and suspected cases) as a communicable disease because it is a significant threat to public health. Currently, *laboratory-confirmed* influenza is designated as a communicable disease.

- Once the Commissioner designates influenza as a communicable disease, the local health officers may exercise their authority under Public Health Law Article (PHL) 21 and 10 NYCRR Part 2 to isolate and/or quarantine individuals to prevent further spread of the virus (see Appendix 1-B: Quarantine Powers of Local Health Officers and Local Boards of Health).

- In the event that health care facilities exceed their capacity, local boards of health and health officers may establish temporary facilities to care for large numbers of individuals who are ill (see PHL Section 2100). The State Public Health Council may establish hospitals for communicable diseases and may establish standards for both types of facilities (see PHL Article 28 and Section 2109). If a state disaster emergency is declared, the Governor can suspend statutory and regulatory requirements to permit the establishment of necessary facilities (see Executive Law Section 29-a).

- Canceling public gatherings and closing businesses and schools may be effective in slowing the spread of influenza (see Appendix 1-C: School Closures during an Emergency, Appendix 1-D: Business Closure during an Emergency, and Appendix 1-E: Suspension of Public Meetings during an Emergency). In rare circumstances, mandatory vaccination may be the most effective means to protect the population. Public Health Law § 613(1) obligates the Commissioner to "develop and supervise the execution of a program of immunization, surveillance and testing to raise . . . the immunity of adults in the state against diseases identified by the Commissioner, including . . . influenza." Public Health Law § 206(1)(1), authorizes the Commissioner to "[e]stablish and operate such adult and child immunization programs as are necessary to prevent or minimize the spread of disease and to protect the public health. Mandatory immunization can only be authorized by the Governor pursuant to the authority given to him in Executive Law § 29-a (see Appendix 1-G: A Guide to New York State Laws Governing Public Health Emergency Preparedness and Response)**.**

- Mass vaccination efforts will most likely require use of volunteer staff who can be expected to inquire into the liability and/or workers compensation coverage that will be available to them if they participate (see Appendix 1-H: Summary of Public Officers Law Coverage Regarding Volunteers). **Use of trained but unlicensed**

personnel may also be needed to accomplish a mass vaccination in a timely fashion (see Appendix 1-F: Use of Unlicensed Volunteers to Administer Influenza Vaccine).

VI. Activities by Pandemic Period

Interpandemic Period

State Health Department:

- Activate the Interagency Taskforce on Influenza Preparedness

State and Local Health Departments:

- Ensure that pandemic plans are developed, either as an annex or supplement to the existing All Hazard Emergency Operations Plans, or as stand-alone plans.
- Identify, address and resolve crucial gaps in infrastructure and resources, laws and/or statutes which may interfere with an effective response.
- Identify partner organizations that must have access to the NYSDOH E Commerce system and initiate outreach for all organizations to gain access and accounts for all key staff members.
- Develop and maintain lists, including contact information, of partners, resources, and facilities using the NYSDOH communication directory.
- Establish and maintain relationships with, and contact information for, key communications partners; facilitate risk communication training for the same.
- Coordinate planning activities with bordering jurisdictions and unique populations as appropriate. This may include bordering counties, states, Native American nations, new immigrant populations, and certain religious enclaves and other countries (such as Canada and Mexico) to support optimal planning and response efforts.
- Review, exercise, and modify the plan on a periodic basis.

Pandemic Alert Period

State Health Department:

- Activate the Interagency Taskforce on Influenza Preparedness and meet with state agency partners to review and modify plan as necessary.
- Activate enhanced surveillance and communications plans.

State and Local Health Departments:

- Meet with appropriate partners and stakeholders and review major elements of the plan and evaluate level of preparedness
- Modify the plan as needed
- Use NYSDOH E Commerce Notification tool and the Health Alert Network (HAN) for critical communications and notifications with key partners.
- Coordinate with other counties, states, federal agencies and bordering jurisdictions as appropriate.

- Confirm availability of facilities for mass vaccination, mass casualty, etc.
- Implement social marketing techniques to normalize influenza risk reduction behaviors and provide information to familiarize target audiences with the issue of pandemic flu.
- Document expenses of pandemic response
- Notify key officials of need for additional resources, if necessary

Pandemic Period

State Health Department:

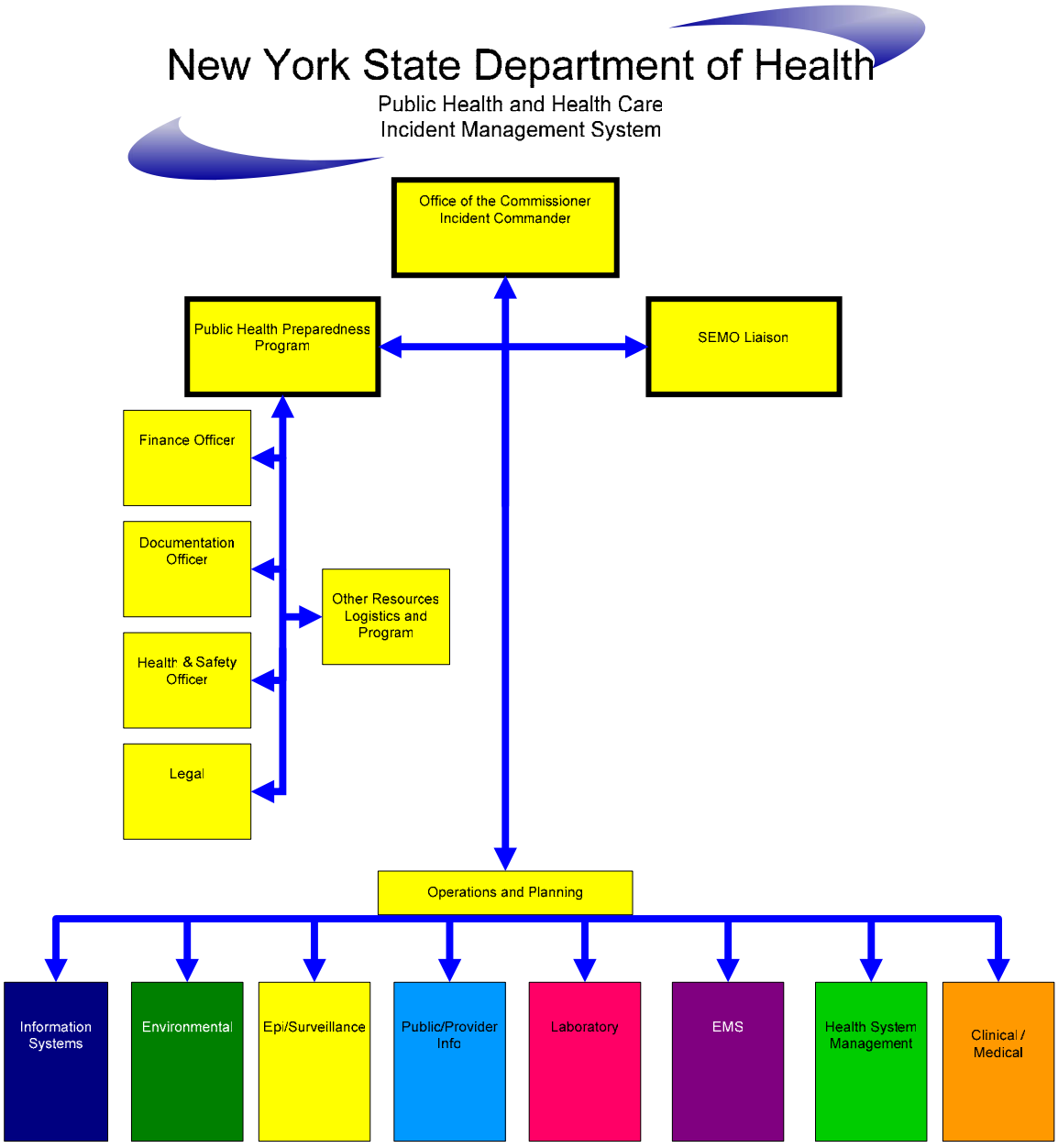
- Activate the Interagency Taskforce on Influenza Preparedness, and meet with partners and stakeholders to fully activate plan.
- Interface with appropriate counterparts at the national level.
- Participate in HHS/CDC public information briefings.
- Establish a Joint Information Center (JIC), or schedule daily media briefings to update information and discuss response activities.

State and Local Health Departments:

- Use NYSDOH E Commerce Notification tool and HAN for critical communications and notifications.
- Monitor staffing needs.
- Coordinate activities with neighboring jurisdictions, as appropriate.
- Activate call centers and implement targeted strategies to reach all audiences, including utilizing the Emergency Alert System (EAS) system, if necessary.
- Document expenses of pandemic response.

Local Health Departments:

- Schedule internal, partner, and media briefings as necessary to update information and discuss response activities.


New York State Department of Health
Public Health and Health Care
Incident Management System
Office of the Commissioner
Incident Commander
Public Health Preparedness
Program
SEMO Liaison
Finance Officer
Documentation
Officer
Other Resources
Logistics and
Program
Health & Safety
Officer
Legal
Operations and Planning
Information
Systems
Environmental
Epi/Surveillance
Public/Provider
Info
Laboratory
EMS
Health System
Management
Clinical /
Medical

STATE OF NEW YORK
DEPARTMENT OF HEALTH

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Antonia C. Novello, M.D., M.P.H., Dr.P.H.
Commissioner

Dennis P. Whalen
Executive Deputy Commissioner

September 2, 2003

Michael Caldwell, M.D., M.P.H.
President
New York State Association of County Health Officials
Dutchess County Dept. of Health
387 Main Street
Poughkeepsie, New York 12601

Re: DOH GC Opinion No.03-03
Quarantine Powers of Local Health
Officers and Local Boards of Health

Dear Dr. Caldwell:

Dennis Whalen, Executive Deputy Commissioner, has asked that I respond to Dr. Lloyd Novick's May 9, 2003 letter, seeking clarification of the authority of local health officials, particularly with regard to the power to isolate and quarantine individuals exposed to or infected with a communicable disease. As indicated below, both local health officers and local boards of health have the power to isolate and quarantine individuals exposed to or infected with a communicable disease designated in the State Sanitary Code. There is considerable variation among counties regarding who exercises the powers of local health officers and local boards of health. Therefore, the general guidance provided in this letter should be supplemented by specific advice from each county's legal advisor.

Brief Summary

A "local health officer" includes a county health commissioner; the health commissioner of a city having a population of 50,000 or more; a public health director; a county health director in counties or cities having populations of less than 150,000 according to the 1970 or subsequent federal census, but without a charter or optional or alternative form of government; and the officer of a city having a population of less than 50,000, town, village, or part-county or consolidated health district who administers and manages public health programs within such jurisdiction. Each can exercise the powers of a local health officer.

A "local board of health" is the board of health of a county, part-county, city, village, town or consolidated health district. In some situations a county legislature may serve as the board of health. In villages the board of health is the board of trustees of the village; in towns the board of health is the town board. Since the Public Health Law provides for either the abolition of certain local health districts or their continuation as a subdivision of the county, or part-county, health district, the activity and authority of town and village boards of health will vary based upon local actions taken. In addition, under Article 9 of the State Constitution and the Municipal Home Rule Law, county charters can reallocate the administrative responsibilities of the agencies of local government among the agencies. As a result, a county charter may give to other county agencies or bodies the powers which the Public Health Law gives to a board of health. Given the variety of local actions that several counties may have undertaken, local health officers should consult with their own legal advisors to confirm what bodies exercise the powers of the local board of health in their jurisdictions. The Department has no central registry of such information.

The Public Health Law requires every local board of health and every local health officer to guard against the introduction of communicable diseases designated in the State Sanitary Code by the exercise of proper and vigilant medical inspection and control of all persons and things infected with or exposed to such diseases. The law authorizes local boards of health and local health officers to provide for the care and isolation of cases of communicable disease in a hospital or elsewhere when necessary for protection of the public health and, subject to the provisions of the State Sanitary Code, to prohibit and prevent all contact and communication with or use of infected premises, places and things, and to require, and if necessary, provide the means for their thorough cleansing before general contact and use is resumed. The law requires health officers to investigate the circumstances and to seek a court order committing non-compliant individuals afflicted with a communicable disease to a hospital or institution established for the care of persons suffering from such communicable disease. Pursuant to these provisions both local health officers and local boards of health have the power and primary responsibility to isolate and quarantine individuals exposed to or infected with a communicable disease designated in the State Sanitary Code.

Discussion

The term "local health officer" is defined in Public Health Law ("PHL") § 2(j) as the "health officer of a county, part-county, city, village, town, or consolidated health district." A county commissioner of health has all the powers and duties of a local health officer. See PHL § 352(2). In "unorganized" counties having a population of less than 150,000 according to the 1970 or subsequent federal census, but no charter or optional or alternative form of government, the county legislature may appoint a county health director "who shall have all the powers prescribed in section three hundred fifty-two of [the PHL]" See PHL § 356.) In counties of less than 250,000 population, a public health director acting with appropriate medical consultation may be employed in lieu of a commissioner of health to administer and manage public health functions in a county. See 10 NYCRR §§ 11.180 through 11.182. The terms "health officer" or "local health officer" are defined in 10 NYCRR § 1.1(d) to mean and include "the health officer, or other officer of a municipality, by whatever title he [sic] may be known, having the usual powers and duties of a health officer of a municipality." The term "local health officer" is more clearly defined in 10 NYCRR § 11.1 to mean (1) the commissioner of health of a county or a city having a population of 50,000 or more and having an established health department; (2) a public health director; (3) a county health director appointed pursuant to PHL § 356 in "unorganized" counties having a population of less than 150,000 according to the 1970 or subsequent federal census, but no charter or optional or alternative form of government; and (4) the officer of a city having a population of less than 50,000, town, village or consolidated health district who administers and manages public health programs within such jurisdiction and who has the general powers and duties specified in the PHL. Each can exercise the powers of a local health officer.

As to local boards of health, as a general proposition, the boards of health of all county and part-county health districts have the same powers and duties. The board of health in a county or part-county health district created under PHL § 340 has the powers set forth in PHL § 347, et seq., including the powers and duties of a local board of health. See PHL § 308. PHL § 356 designates the legislatures of certain small counties ("unorganized" counties having a population of less than 150,000 according to the 1970 or subsequent federal census, but no charter or optional or alternative form of government) as the local board of health and provides that they, too, "shall have all the powers and duties of a board of health of a county or part-county health district."

A differentiation among powers exercised by county boards of health arises when they respond to local conditions, such as the availability of resources or enactment of charters. PHL § 602(6) permits the State Commissioner of Health to approve a public health services plan in which the county provides reduced services, as long as the services the county does not provide can be provided by the State or through contract. This can result in "partial service" health departments in which state district offices provide some services within a county. Similarly, PHL § 341 provides for either the abolition of certain local health districts or their continuation within a county or part-county health district as a subdivision of the county or part-county health district. Thus, in one county the town

and village boards of health may be active participants in public health while a different county or part-county health district may be more centralized. In villages the board of health is the board of trustees of the village; in towns the board of health is the town board. See PHL § 302. PHL § 356 does not address the relationship between a county board of health created under its terms and pre-existing town and village boards of health. Therefore, such pre-existing town and village boards of health might have greater autonomy in county and part-county health districts governed by PHL § 356 than they would in county and part-county health districts formed under PHL § 340.

In addition, under Article 9 of the State Constitution and the Municipal Home Rule Law, county charters can reallocate the administrative responsibilities of local government agencies. As a result, a charter may give the county legislature or some other local agency powers which the PHL gives to a board of health. The scope and exercise of that power would, of course, be subject to any provisions of the PHL or State Sanitary Code. The Department does not maintain a summary of county charter provisions. Given the variety of possible local actions that several counties may have undertaken, the county commissioners and public health directors should consult with their own legal advisors to confirm what bodies exercise the powers of the local board of health. The Department has no central registry of such information.

With regard to the power to isolate and quarantine, PHL § 2100 states:

> 1. Every local board of health and every health officer shall guard against the introduction of such communicable diseases as are designated in the sanitary code, by the exercise of proper and vigilant medical inspection and control of all persons and things infected with or exposed to such diseases.
>
> 2. Every local board of health and every health officer may:
>
> (a) provide for care and isolation of cases of communicable disease in a hospital or elsewhere when necessary for protection of the public health and,
>
> (b) subject to the provisions of the sanitary code, prohibit and prevent all intercourse and communication with or use of infected premises, places and things, and require, and if necessary, provide the means for the thorough purification and cleansing of the same before general intercourse with the same or use thereof shall be allowed.

In addition, PHL § 2120 requires health officers, upon receipt of a complaint from a physician that a person is afflicted with a communicable disease and is unable or unwilling to conduct himself and to live in such a manner as not to expose members of his family or household or other persons with whom he may be associated to danger of infection, to investigate the circumstances and to seek a court order committing the individual to a hospital or institution established for the care of persons suffering from such communicable disease. Pursuant to these provisions both local health officers and local boards of health have the power to isolate and quarantine individuals exposed to or infected with a communicable disease designated in the State Sanitary Code. The State Sanitary Code places the primary responsibility for such isolation and quarantine on local health officers, see 10 NYCRR §§ 2.6, 2.25(d), (e) and (f), and 2.29.

I also want to take this opportunity to confirm the New York State Department of Health's position that local health officers and local boards of health may quarantine and isolate only patients infected with or exposed to

communicable diseases determined to be dangerous to the public health by the New York State Public Health Council and listed in 10 NYCRR § 2.1. We understand that local health officers are concerned that they be able to respond quickly to communicable disease threats in their communities. By authorizing the State Commissioner of Health to add diseases to the communicable disease list in 10 NYCRR § 2.1 between its meetings, the Public Health Council has assured that expeditious response will be possible. The Department looks forward to continuing to work effectively and collaboratively with local health officers to meet the challenges of communicable disease control.

Very truly yours,

Donald P. Berens, Jr.
General Counsel

cc: Dennis Whalen
Dr. Lloyd Novick
JoAnn Bennison

School Closures during an Emergency

Schools are required to develop school emergency management plans (see 18 NYCRR 155.17). Generally, the school board or the school superintendent by delegation from the school board has authority to close a school to ensure the health of the students and staff. If a school superintendent refuses or fails to act, the State Commissioner of Education can override and order the school closed.

> The Commissioner of Education or his or her designee may order emergency response actions by individual school districts in the event that the local officials are unable or unwilling to take action deemed to be appropriate by State and/or county emergency personnel in accordance with county or State emergency preparedness plans or directives**.** 18 NYCRR 155.17(m).

For closure of individual schools, local health commissioners should contact the local superintendent of schools when school closure due to an outbreak of influenza is indicated. If such efforts fail, the State Commissioner of Education can be reached through the local (BOCES) District Superintendent, except in the cities of Buffalo, Rochester, Syracuse, Yonkers and New York. If the school is in those cities contacts should be made directly with the Commissioner's office.

Alternatively, if continued operation of the school could constitute a nuisance or cause of danger or injury to life and health within the health district, the local health board or local health officer may order suppression of the nuisance (see Public Health Law Article 13). The local health officer should consult with an attorney when making this determination.

State and local police officers may close streets or parts thereof to vehicular traffic or re-direct traffic when they deem it advisable at the time of a special emergency only for such period of time as is necessitated thereby for the public safety or convenience (see Vehicle and Traffic Law §§ 1602 and 1683). If it appears necessary to close any state, county or town roads in an emergency the state commissioner of transportation and county or town highway superintendents respectively may do so by filing certificates of necessity with the town clerk of the town in which the road is located (see Highway Law § 104). These authorities may be considered if it is necessary to prevent a school or schools from opening while an order for closure is pursued.

If school closure is required in the context of a declared local state of emergency, the local chief executive may promulgate local emergency orders to protect life or property or to bring the emergency situation under control [see Executive Law § 24 (1)]. Such orders may include the establishment of a curfew and the prohibition and control of pedestrian and vehicular traffic, except essential emergency vehicles and personnel; the designation of specific zones within which the occupancy or use of buildings and the ingress and egress of vehicles and persons may be prohibited or regulated; and the prohibition and control of the presence of persons on public streets and places. Such orders can be used to effectively close schools. The Director of the County Emergency

Management Office or the local county executive should be contacted when such an order is needed.

If school closure is required in the context of a declared state disaster emergency, the Governor may by executive order, temporarily suspend the specific provisions of any statute, local law, ordinance, or orders, rules or regulations or any parts thereof, including school attendance and operational requirements, if compliance with such provisions would prevent, hinder, or delay action necessary to cope with the disaster (see Executive Law § 29-a). Such orders may provide for suspension only under particular circumstances, and may provide for alteration or modification of the requirements of any statute, local law, ordinance, order, rule or regulation. If such an order is needed the Director of the State Emergency Management Office should be contacted.

Business Closures during an Emergency

If continued operation of a business could constitute a nuisance or cause of danger or injury to life and health within the health district, the local health board or local health officer may order suppression of the nuisance (see Public Health Law Article 13). The local health officer should consult with an attorney when making this determination.

State and local police officers may close streets or parts thereof to vehicular traffic or re-direct traffic when they deem it advisable at the time of a special emergency only for such period of time as is necessitated thereby for the public safety or convenience (see Vehicle and Traffic Law §§ 1602 and 1683). If it appears necessary to close any state, county or town roads in an emergency the state commissioner of transportation and county or town highway superintendents respectively may do so by filing certificates of necessity with the town clerk of the town in which the road is located (see Highway Law § 104). These authorities may be considered to prevent a business or businesses from opening while an order for closure is pursued.

If business closure is required in the context of a declared local state of emergency, the local chief executive may promulgate local emergency orders to protect life or property or to bring the emergency situation under control [see Executive Law § 24 (1)]. Such orders may include the establishment of a curfew and the prohibition and control of pedestrian and vehicular traffic, except essential emergency vehicles and personnel; the designation of specific zones within which the occupancy or use of buildings and the ingress and egress of vehicles and persons may be prohibited or regulated; the prohibition and control of the presence of persons on public streets and places; and the regulation and closing of places of amusement and assembly. Such orders can be used to effectively close business. The Director of the County Emergency Management Office or the local county executive should be contacted when such an order is needed.

If business closure is required in the context of a declared state disaster emergency, the Governor may by executive order, temporarily suspend the specific provisions of any statute, local law, ordinance, or orders, rules or regulations or any parts thereof, if compliance with such provisions would prevent, hinder, or delay action necessary to cope with the disaster (see Executive Law § 29-a). Such orders may provide for suspension only under particular circumstances, and may provide for alteration or modification of the requirements of any statute, local law, ordinance, order, rule or regulation. If such an order is needed the Director of the State Emergency Management Office should be contacted.

Suspension of Public Meetings during an Emergency

If the holding of a public meeting could constitute a nuisance or cause of danger or injury to life and health within the health district, the local health board or local health officer may order suppression of the nuisance (see Public Health Law Article 13). The local health officer should consult with an attorney when making this determination.

State and local police officers may close streets or parts thereof to vehicular traffic or re-direct traffic when they deem it advisable at the time of a special emergency only for such period of time as is necessitated thereby for the public safety or convenience (see Vehicle and Traffic Law §§ 1602 and 1683). If it appears necessary to close any state, county or town roads in an emergency the state commissioner of transportation and county or town highway superintendents respectively may do so by filing certificates of necessity with the town clerk of the town in which the road is located (see Highway Law § 104). These authorities may be considered if there is a need to effectively cancel public meetings while an order suspending such meetings is pursued.

If suspension of public meetings is required in the context of a declared local state of emergency, the local chief executive may promulgate local emergency orders to protect life or property or to bring the emergency situation under control [see Executive Law § 24 (1)]. Such orders may include the establishment of a curfew and the prohibition and control of pedestrian and vehicular traffic, except essential emergency vehicles and personnel; the designation of specific zones within which the occupancy or use of buildings and the ingress and egress of vehicles and persons may be prohibited or regulated; the prohibition and control of the presence of persons on public streets and places; and the regulation and closing of places of amusement and assembly. Such orders can be used to effectively close schools. The Director of the County Emergency Management Office or the local county executive should be contacted when such an order is needed.

If suspension of public meetings is required in the context of a declared state disaster emergency, the Governor may by executive order, temporarily suspend the specific provisions of any statute, local law, ordinance, or orders, rules or regulations or any parts thereof, if compliance with such provisions would prevent, hinder, or delay action necessary to cope with the disaster (see Executive Law § 29-a). Such orders may provide for suspension only under particular circumstances, and may provide for alteration or modification of the requirements of any statute, local law, ordinance, order, rule or regulation. If such an order is needed the Director of the State Emergency Management Office should be contacted.

Use of Unlicensed Volunteers to Administer Influenza Vaccine

10 NYCRR § 2.56 authorizes individuals other than health care practitioners licensed under Title 8 of the Education Law to administer immunizations under certain conditions. It states:

> 2.56 Immunizations administered by individuals other than health care practitioners as permitted by their license under Title 8 of the Education Law.
>
> (a) During the course or as part of any public immunization program, individuals other than health care practitioners licensed under Title 8 of the Education Law may administer immunizations involving oral, intra-muscular, subcutaneous or intradermal administration, including but not limited to immunizations, against rubella, polio, pertussis, measles, diphtheria and tetanus, when so authorized by the State Commissioner of Health or local health officer.
>
> (b) Before an individual may administer immunizations as provided in Subdivision of this section, he must have received training satisfactory to the State Commissioner of Health or local health officer to include indications, precautions and contraindications in the use of the agent or agents and techniques of administration.
>
> (c) The State Commissioner of Health or local health officer shall maintain a current list of all individuals whose training is satisfactory to him for the administration of immunizations under his direction.

If a state disaster emergency is declared, the Governor may by executive order, temporarily suspend the specific provisions of any statute, local law, ordinance, or orders, rules or regulations or any parts thereof, including professional licensure requirements, if compliance with such provisions would prevent, hinder, or delay action necessary to cope with the disaster (see Executive Law § 29-a). Such orders may provide for suspension only under particular circumstances, and may provide for alteration or modification of the requirements of any statute, local law, ordinance, order, rule or regulation. If such an order is needed, the Director of the State Emergency Management Office should be contacted.

A Guide to New York State Laws Governing Public Health Emergency Preparedness and Response

This compilation of New York State statutory and regulatory authority is intended as a convenient resource for state and local health officials involved in planning for potential bioterrorism and other public health emergencies, including those arising from a radiological source.

I. PLANNING FOR A PUBLIC HEALTH EMERGENCY

A. DISASTER PREPAREDNESS PUBLIC POLICY STATEMENT

Authority: Executive Law 20(1) states that it is the policy of the State that:
(a) local government and emergency service organizations continue their essential role as the first line of defense in times of disaster, and that the State provide appropriate supportive services to the extent necessary;
(b) local chief executives take an active and personal role in the development and implementation of disaster preparedness programs and be vested with authority and responsibility in order to assure the success of such programs;
(c) State and local natural disaster and emergency response functions be coordinated in order to bring the fullest protection and benefit to the people;
(d) State resources be organized and prepared for immediate effective response to disasters which are beyond the capability of local governments and emergency service organizations; and
(e) State and local plans, organizational arrangements, and response capability required to execute the provisions of Executive Law Article 2-B (Disaster Preparedness) shall at all times be the most effective that current circumstances and existing resources allow.

B. DISASTER PREPAREDNESS COMMISSION PLAN

Authority: Executive Law 21 provides for the creation of a Disaster Preparedness Commission, which includes the commissioners of the following State agencies: Health, Transportation, Division of Criminal Justice Services, Education, Economic Development, Agriculture and Markets, Housing and Community Renewal, General Services, Labor, Environmental Conservation, Mental Health, State Energy Research and Development Authority, State Police, Insurance, Banking, and State. The Disaster Preparedness Commission also includes the State Fire Administrator, the chair of the Public Service Commission, the Adjutant General, the chairman of the State Thruway Authority, the chief professional officer of the State coordinating chapter of the American Red Cross and other members appointed by the Governor.

Among the Disaster Preparedness Commission's duties set forth at Executive Law 21(3)(c) is the duty to prepare State disaster preparedness plans.

C. CIVIL DEFENSE DRILLS
Authority: Executive Law 29-b(1) provides that the Governor may, in his discretion, direct the State Civil

Defense Commission to conduct a civil defense drill, under its direction, in which all or any of the civil defense forces of the State may be utilized to perform the duties assigned to them in a civil defense emergency, for the purpose of protecting and preserving human life in a disaster. In such event, civil defense forces in the State shall operate under the direction and command of the State Director of Civil Defense, who is, pursuant to Military Law 11, the Adjutant General.

Executive Law 29-b(2) and (3) respectively set forth provisions governing use of civil defense forces by the chief executives of counties and cities, including provisions relating to drills.

II. REPORTING AND DETECTION

The ability to detect and respond effectively to an unannounced act of bioterrorism may depend significantly upon timely and complete reporting of cases of communicable disease.

A. PRIMARY REPORTERS OF CASES OF COMMUNICABLE DISEASE AND OTHER INDICATORS OF DISEASE OUTBREAK

1. Local Health Officers Outside the City of New York

What is reported: All cases of such communicable diseases as may be required by State Department of Health (DOH)
Report made to: State DOH
Manner of reporting: Original reports or summary reports when authorized by State DOH
When reported: Promptly
Authority: Public Health Law 2103 requires every local health officer to report promptly to the State DOH all cases of communicable diseases as may be required by State DOH. Public Health Law 2110 excepts the provisions of Public Health Law 2103 from applying to the City of New York. See instead New York City Health Code Article 11.

2. County Health Commissioners Outside the City of New York

What is reported: Original reports of communicable disease cases.
Report made to: State DOH.
Manner of reporting: Original reports or summary reports when authorized by State DOH.
When reported: Within 24 hours after receipt by county health commissioner.
Authority: Public Health Law 2104(1) requires the health officer of each city, village, town and consolidated health district included as part of any county or part-county health district, to transmit daily all original reports of communicable disease cases to the county

health commissioner. Public Health Law 2104(2) requires the county health commissioner to transmit to State DOH the original reports of communicable disease cases within 24 hours after he or she receives them. Public Health Law 2110 excepts the provisions of Public Health Law 2104 from applying to the City of New York. See instead New York City Health Code Article 11.

3. **Hospitals**

***What is reported*:** "Case", defined in 10 NYCRR 2.2(b) as a person diagnosed to have a particular disease or condition; "outbreak", defined in 10 NYCRR 2.2(c) as an increased incidence of disease above its expected baseline level.
Report made to: State DOH and to the city, county or district health officer.
When reported: Not specified.
Manner of reporting: as specified by the Commissioner of Health (10 NYCRR 405.11(c).
Authority: Public Health Law 201(1)(c) authorizes DOH to supervise the reporting and control of disease. Public Health Law 2803(1)(a) grants the Commissioner of Health the power to inquire into the operation of hospitals. 10 NYCRR 405.11(c), which requires the hospital professional responsible for the hospital-wide infection control program to report to DOH any increased incidence of nosocomial infections, must be read with the 10 NYCRR 2.2(a) definition, which states that "for public health reporting purposes, hospital associated infections include outbreaks or increased incidence of disease due to microbiological agents or their toxic products". 10 NYCRR 2.1 specifies the infectious, contagious or communicable diseases which must be reported pursuant to various provisions contained within 10 NYCRR Part 2 (Communicable Diseases), which was promulgated pursuant to Public Health Law 225. Nosocomial infections are reportable by hospitals pursuant to 10 NYCRR 405.11(c).

4. **Physicians Outside the City of New York**

What is reported: The full name, age and address of every person with a suspected or confirmed case of a communicable disease or any outbreak of communicable disease, together with the name of the disease, and any additional information requested by the health officer in the course of a communicable disease investigation.
Report made to: City, county or district health officer within whose jurisdiction the patient is.
When reported: Immediately or within 24 hours from the time the case is first seen by the physician.
***Manner of reporting*:** Telephone, facsimile and other electronic transmission if indicated, and also in writing unless the State Health Commissioner approves waiver of written notice.
Authority: Public Health Law 2101 requires that every physician shall immediately give notice of every case of communicable disease required by State DOH to be reported to it, to the health officer of the local health district where such disease occurs. Existing regulations promulgated pursuant to Public Health Law 225, and set forth at 10 NYCRR 2.10, require every physician to report to the city, county, or district health officer, within whose jurisdiction the patient is, specified information concerning every person with a suspected or confirmed case of a communicable disease or any outbreak of

communicable disease, within 24 hours from the time the case is first seen by the physician. Reports shall be made by telephone, facsimile or other electronic transmission if indicated, and shall also be made in writing, except that the written notice may be omitted with the approval of the State Commissioner of Health. Although direct reporting to State DOH is not currently required, when a communicable disease is reported to a city, county or district health officer, a copy is retained in that office, and another copy of the report must be reported to State DOH, pursuant to 10 NYCRR 2.1(b).

5. **Physicians Within the City of New York**

Authority: Public Health Law 2110 excepts the City of New York from, among other requirements, the provisions of Public Health Law 2101 described in paragraph 4 above. See instead New York City Health Code Article 11.

6. **Nursing homes, diagnostic and treatment centers, other Public Health Law Article 28 facilities**

What is reported: Cases of communicable diseases as defined in 10 NYCRR 2.2(b).
Report made to: State DOH and to the city, county or district health officer in whose jurisdiction the institution is located.
When reported: Not specified.
Manner of reporting: Not specified.
Authority: 10 NYCRR 2.10(a) provides that when a case of communicable disease occurs in a facility licensed under Article 28 of the Public Health Law, the person in charge of the facility shall report the case to the State Department of Health and to the city, county or district health officer in whose jurisdiction the institution is located.

7. **Clinical Laboratories**

What is reported: Identity of person from whom specimen is taken, name of physician sending specimen, other facts pertinent to the examination. Tests performed and such other information as the Department of Health may require to carry out the provisions of Title V, Article 5 of the Public Health Law. Also, such information and data concerning the laboratory's technical operation as may be specified by the Department.
Report made to: Local health official and State DOH.
When reported: Immediately for communicable disease reporting.
Manner of reporting: In a form prescribed by the Department.
Authority: Public Health Law 2102(1) requires that when any laboratory examination discloses evidence of communicable disease, the results of such examination together with all required pertinent facts, shall be immediately reported by the person in charge of the laboratory or the person making such examination to the local or state health official to whom the attending physician is required to report such case. Public Health Law 576(2) authorizes the State DOH to require clinical laboratories and blood banks to submit, in a form prescribed by the Department, periodic reports of tests performed and such other information as the Department may require to carry out the provisions of Title V, Article 5. 10 NYCRR Part 58-1.11(a) states that when requested, a laboratory shall submit reports containing such information and data concerning its technical operation as may be specified by the Department.

8. **State Institutions**
What is reported: Cases of communicable diseases.
Report made to: State DOH and to city, county or district health officer.
When reported: Not specified.
Manner of reporting: Not specified.
Authority: Public Health Law 2105 requires the director or person in charge of each state institution to report immediately an outbreak of a communicable disease in such institution to the State Health Commissioner and as may otherwise be provided in the State Sanitary Code. 10 NYCRR 2.10(a) provides that when a case of communicable disease occurs in a State institution or a facility licensed under Article 28 of the Public Health Law, the person in charge of the institution or facility shall report the case to the State Department of Health and to the city, county or district health officer in whose jurisdiction such institution is located.

9. **Public Health Nurses and All Other Persons When No Physician Is In Attendance**

What is reported: The name and address of any individual affected with any disease presumably communicable.
Report made to: City, county or district health officer.
When reported: Immediately.
Manner of reporting: Not specified.
Authority: 10 NYCRR 2.12 provides that when no physician is in attendance, it shall be the duty of the head of a private household or the person in charge of any institution, school, boarding house, camp or vessel or any public health nurse or any other person having knowledge of an individual affected with any disease presumably communicable, to report immediately the name and address of such person to the city, county, or district health officer.

10. **Coroners, Medical Examiners, Pathologists**
What is reported: Case of any individual who at time of death was apparently affected with a communicable disease, based on examination of the corpse or from history of events leading to death.
Report made to: City, county or district health officer.
When reported: Within 24 hours of determination.
Manner of reporting: By telephone, facsimile transmission or other electronic communication if indicated, and also in writing, except that the written notice may be omitted with the approval of the State Health Commissioner.
***Authority*:** 10 NYCRR 2.11 provides that if a pathologist, coroner, medical examiner, or other person determines from examination of a corpse or from history of the events leading to death that at the time of death this individual apparently was affected with a communicable disease, he/she shall report the case within 24 hours to the proper health authority according to the manner indicated in 10 NYCRR 2.10 as if the diagnosis had been established prior to death. Note that the State Department of Health is not a direct recipient of such information pursuant to 10 NYCRR 2.10 but is an indirect recipient pursuant to 10 NYCRR 2.1(b).

B. REGULATION OF LIVE PATHOGENIC MICROORGANISMS OR VIRUSES

Authority: This is an area regulated primarily by the Federal government. It is important because of the potential threat of diversion of dangerous pathogens for bioterrorism. In addition to the State law cited below, see also Title 42 Code of Federal Regulations Part 72, entitled Interstate Shipment of Etiologic Agents, promulgated pursuant to the Antiterrorism Act of 1996, Pub.L. No. 104-132 which, among other things, directed the Federal Centers for Disease Control and Prevention to establish a regulatory scheme to identify biological agents posing a threat to the public health and to regulate their transfer and use through Federal rule. See also the USA Patriot Act of 2001(Pub. Law 107-56, section 817); 18 U.S.C. 175 and 175b.

Public Health Law Article 32 (Live Pathogenic Microorganisms or Viruses) requires that no person other than a licensed practitioner of medicine, dentistry, or veterinary medicine or a person under their direct supervision shall possess or cultivate live pathogenic microorganisms or viruses other than vaccine virus, subject to certain exceptions. Public Health Law 3201(1),(2) requires that no person shall sell or convey any live pathogenic microorganisms or viruses other than vaccine virus to any other person without permission from the State Commissioner of Health, or the New York City Health Department if within that city. However, this requirement does not apply to diseased tissue, exudate, or other specimens which are sent by physicians, dentists or veterinarians to laboratories for examination as an aid to the diagnosis or control of disease.

III. STATE AND LOCAL GOVERNMENT RESPONSE PROVISIONS

A. AT ONSET OF PUBLIC HEALTH EMERGENCY

1. Actions of the Governor

a. Governor May Declare a Disaster Emergency

Authority: Executive Law 28(1),(3) provides that whenever the Governor, on his own initiative or pursuant to a request from one or more chief executives, finds that a disaster has occurred or may be imminent, for which local governments are unable to respond adequately, he shall declare a disaster emergency by executive order, which describes the disaster and affected area, and which remains in effect for a period not to exceed 6 months unless extended by executive order for additional limited periods.

Disaster is defined at Executive Law 20(2)(a) as the occurrence or imminent threat of widespread or severe damage, injury, or loss of life or property resulting from any natural or man-made causes, including, but not limited to, fire, flood, earthquake, hurricane, tornado, high water, landslide, mudslide, wind, storm, wave action, volcanic activity, ***epidemic***, air contamination, blight, drought, infestation, explosion, radiological accident, water contamination, bridge failure or bridge collapse.

State disaster emergency is defined at Executive Law 20(2)(b) as a period beginning with a declaration by the Governor that a disaster exists and ending upon its termination.

b. Governor May Invoke the New York State Defense Emergency Act of 1951
Authority: The New York State Defense Emergency Act of 1951 (Chapter 784, Laws of 1951), could be invoked following an "attack", defined to include any case involving use of bacteriological or biological means, thereby empowering a State Defense Council, chaired by the Governor, to exercise a broad range of extraordinary powers. (See appendices which contain the complete statute).

2. Local Government Actions
a. Chief Executive of a County, City, Town or Village May Proclaim a Local State of Emergency
Authority: Executive Law 24(1) provides that specified chief executives (defined at Executive Law 20(2)(f)) may proclaim a local state of emergency within any part or all of the territorial limits of such local government under specified circumstances.

Local state of emergency may arise in the event of a disaster, rioting, catastrophe, or similar public emergency within the territorial limits of any county, city, town or village. See Executive Law 24(1).

B. DURING PUBLIC HEALTH EMERGENCY

1. Actions of the Governor
a. Governor May Temporarily Suspend State and Local Laws and Regulations Under Specified Conditions
Authority*:** Under Executive Law 29-a, the Governor may, by executive order and subject to the State and Federal Constitutions and Federal statutes and regulations, and after seeking the advice of the Disaster Preparedness Commission, temporarily ***suspend specific provisions of any statute, local law, ordinance, or orders, rules or regulations, or parts thereof, of any agency during a state disaster emergency, if compliance with such provisions would prevent, hinder, or delay action necessary to cope with the disaster.

b. Governor Shall Take Specified Actions Following Declaration of Disaster Arising from Radiological Accident
Authority: Executive Law 28(2) requires that upon the Governor's declaration of a disaster arising from a radiological accident, the Governor or his designee, shall direct one or more chief executives and emergency services organizations to: (a) notify the public that an emergency exists; and (b) take appropriate protective actions pursuant to the radiological emergency preparedness plan approved pursuant to sections 22 and 23 of the Executive Law. The Governor or his designee shall also have the authority to direct that other actions be taken by such chief executives pursuant to their authority under Executive Law 24.

c. Governor May Request Federal Assistance
***Authority*:** Executive Law 28(4) provides that whenever the Governor finds that a disaster is of such severity and magnitude that effective response is beyond the capabilities of the State and the affected jurisdictions, he shall make an appropriate

request for Federal assistance available under Federal law, and may make available out of any funds provided under the governmental emergency fund or such other funds as may be available, sufficient funds to provide the required State share of grants made under any Federal program for meeting disaster related expenses.

d. Governor May Direct State Agencies to Provide Disaster Emergency Assistance
***Authority*:** Executive Law 29 provides that upon the declaration of a state disaster emergency, the Governor may direct any and all agencies of the state government to provide assistance under the coordination of the Disaster Preparedness Commission. Such State assistance may include: (1) utilizing, lending, or giving to political subdivisions, with or without compensation, equipment, supplies, facilities, services or state personnel, and other resources, other than the extension of credit; (2) distributing medicine, medical supplies, food and other consumable supplies through any public or private agency authorized to distribute such items; (3) performing on public or private lands temporary emergency work essential for the protection of public health and safety, clearing debris and wreckage, making emergency repairs to and temporary replacements of public facilities of political subdivisions damaged or destroyed as a result of such disaster; and (4) making such other use of their facilities, equipment, supplies and personnel as may be necessary to assist in coping with the disaster or any resulting emergency.

e. Governor May Order the Organized Militia into Service of the State
Authority: Military Law 6(1) provides that the Governor shall have power, in case of disaster, to order the organized militia into the active service of the State for such period, to such extent, and in such manner as he may deem necessary. Pursuant to Military Law 9, whenever the organized militia is employed under Military Law 6, the Governor may by proclamation declare the county or city in which the troops are serving to be under ***martial rule***, if in the Governor's judgment the maintenance of law and order will thereby be promoted. Martial rule is subject to the Federal and State Constitutions and is governed by the Code of Military Justice. See Military Law Article VII.

f. Governor May Issue Call to the State Police
Authority: Executive Law 223(1) sets forth the duties and powers of the Superintendent and members of the New York State Police. The State Police are subject to the call of the Governor and are empowered to cooperate with any other department of the State or with local authorities. Upon the direction of the Governor or upon the request of the mayor of a city with the approval of the Governor, the State Police may exercise their powers within the limits of any city to suppress rioting and disorder.

g. Governor May Require State Health Commissioner to Examine Nuisances and Order Their Abatement or Removal
Authority: Public Health Law 1301(1) provides that whenever required by the Governor, the State Commissioner of Health shall make an examination concerning nuisances or questions affecting the security of life and health in any locality, and shall report the results to the Governor within the time prescribed by him. The Governor may declare the matters public nuisances and may order them to be changed, abated or removed as he

may direct, pursuant to Public Health Law 1301(2). Pursuant to Public Health Law 1301(3), the Governor may, by a precept under his hand and official seal, require the district attorney, sheriff and other officers of the county where such nuisance is maintained, to take all necessary measures to execute such order and cause it to be obeyed.

Application of these provisions to a situation arising from bioterrorism would assume the resulting contamination of property which might be identified and termed a public *nuisance*.

2. State Agency Actions

a. State Health Commissioner and New York State Department of Health Continue to Exercise Powers and Duties Regarding Public Health Matters as Provided by Law

Authority: Public Health Law 200 provides for the existence of a Department of Health in State government, headed by a Commissioner of Health of the State of New York. Public Health Law 206(1)(a) states the duty of the Commissioner of Health to take cognizance of the interests of public health and exercise functions, powers and duties prescribed by law.

Supervision of local boards of health and health officers — Public Health Law 206(1)(b) states the duty of the Commissioner of Health to exercise general supervision over the work of all local boards of health and health officers, unless provided otherwise.

Promulgation of regulations by Public Health Council --- Public Health Law 225(4) and 225(5)(a) provide that the Public Health Council, which exists within the Department of Health, shall have the power to establish, amend and repeal regulations known as the State Sanitary Code, which may deal with any matters affecting the security of life or health or the preservation and improvement of public health in the State of New York and with any matters as to which the jurisdiction is conferred upon the Public Health Council.

Supervision of reporting and control of disease --- Public Health Law 206(1)(d) states the duty of the Commissioner to investigate the causes of disease, epidemics, the sources of mortality and the effect of various factors on public health. Public Health Law 201(1)(c) states that the Department of Health shall, as provided by law, supervise the reporting and control of disease.

Supervision of nuisance abatement — Public Health Law 201(1)(n) requires the Department to exercise control over and supervise the abatement of nuisances affecting or likely to affect public health. Public Health Law 1300 confers on the Commissioner of Health all necessary powers to make investigations and examinations into nuisances, or questions affecting the security of life and health in any locality. Pursuant to Public Health Law 1303(4) and 10 NYCRR 8.5, the Commissioner of Health may mandate that local boards of health outside of New York City convene and take directed action necessary for the public good, including the abatement of the spread of disease.

Deputization of local health officers --- Pursuant to Public Health Law 206(9), the Commissioner of Health may deputize in writing any local health officer to do or perform in her place and stead those duties set forth at Public Health Law 206(1)(d) pertaining to the investigation of the causes of disease, epidemics, the sources of mortality, and the effect of localities, employments and other conditions, upon the public health.

Modification of local board of health orders --- Pursuant to Public Health Law 206(4)(b), the Commissioner of Health may annul or modify an order, regulation, by-law or ordinance of a local board of health concerning a matter which in her judgment affects the public health beyond the territory over which such local board of health has jurisdiction.

Access to facilities and property --- Pursuant to Public Health Law 206(2), the Commissioner of Health or designee may, without fee or hindrance, enter, examine and survey all grounds, erections, vehicles, structures, apartments, buildings and places.

Expenditure of funds --- Public Health Law 201(1)(p) provides that the Department of Health shall receive and expend funds for public health purposes as provided by law.

Distribution of products --- Public Health Law 201(1)(e) requires the Department of Health to produce, standardize and distribute diagnostic, prophylactic and therapeutic products as provided by law.

Regulation of public health aspects of radiation — Public Health Law 201(1)(r) requires the Department of Health to supervise and regulate the public health aspects of ionizing radiation and non-ionizing electromagnetic radiation.

Promotion of disease education --- Public Health Law 201(1)(g) requires the Department of Health to promote education in the prevention and control of disease as provided by law.

b. State Health Commissioner May Take Summary Action to Protect Public Health
Authority: Public Health Law 16 provides that whenever the Commissioner, after investigation, is of the opinion that any person is causing, engaging in or maintaining a condition or activity which in her opinion constitutes danger to the health of the people, and that it therefore appears to be prejudicial to the interests of the people to delay action for 15 days until an opportunity for a hearing can be provided in accordance with the provisions of Public Health Law section 12-a, the Commissioner shall order the person, including any State agency or political subdivision having jurisdiction, by written notice to discontinue such dangerous condition or activity or take certain action immediately or within a specified period of less than 15 days. As promptly as possible thereafter, within not to exceed 15 days, the Commissioner shall provide the person an opportunity to be heard and to present any proof that such condition or activity does not constitute a danger to the health of the people.

c. Commissioner of General Services May Authorize State Agency Emergency Procurements

Authority: State Finance Law 163(10)(b) provides that procurements made to meet emergencies arising from unforeseen causes may be made without a formal competitive process and shall only be made under unusual circumstances and shall include a determination by the Commissioner of General Services or the State agency that the specifications or requirements for the purchase have been designed in a fair and equitable manner. The purchasing agency is required to document in the procurement record the nature of the emergency giving rise to the procurement.

Emergency is defined at State Finance Law 163(1)(b) as an urgent and unexpected requirement where health and public safety or the conservation of public resources is at risk.

3. Local Government Actions

a. Local Boards of Health and Health Officers Have the Duty and Authority to Control Infectious Diseases by Means that Include Isolation and Quarantine

Authority: Public Health Law 2100 (1) requires every local board of health and every health officer to guard against the introduction of such communicable diseases as are designated in the State Sanitary Code, by the proper and vigilant medical inspection and control of all persons and things infected with or exposed to such diseases. Public Health Law 2100(2) places a legal duty upon local boards of health and health officers to: (a) provide for care and isolation of cases of communicable disease in a hospital or elsewhere when necessary for protection of the public health and (b) subject to the provisions of the State Sanitary Code, prohibit and prevent all intercourse and communication with or use of infected premises, places, and things, and require, and if necessary provide the means for their thorough purification and cleansing before resumption of their use. Pursuant to Public Health Law 2110, New York City is exempt from the requirements contained in Public Health Law 2100. See New York City Health Code Article 11.

Isolation is defined at10 NYCRR 2.25(d) as consisting of the separation from other persons, in such places, under such conditions, and for such time, as will prevent transmission of the infectious agent, of persons known to be ill or suspected of being infected.

Quarantine of premises is defined at 10 NYCRR 2.25(e) to consist of (1) prohibition of entrance into or exit from the premises, as designated by the health officer, where a case of communicable disease exists of any person other than medical attendants and such others as may be authorized by the health officer; (2) prohibition, without permission and instruction from the health officer, of the removal from such premises of any article liable to contamination with infective material through contact with the patient or with his secretions or excretions, unless such article has been disinfected.

Pursuant to 10 NYCRR 2.29, whenever a case of a highly communicable disease (as defined in 10 NYCRR 2.1) comes to the attention of the city, county or district health officer, he or she shall isolate such patients as in his or her judgment are deemed

necessary. Pending official action by the health officer, it is the legal duty of every attending physician, upon discovering a case of a highly communicable disease (as defined in 10 NYCRR 2.1) to immediately isolate the patient. 10 NYCRR 2.33 restricts the removal of persons affected with any highly communicable disease (as defined in 10 NYCRR 2.1) from one health district into another.

Under case law, including *Crayton v. Larabee* (1917) 220 N.Y. 493, isolation and quarantine must not be arbitrary, unreasonable or oppressive, and due process protections must be afforded to persons subject to isolation and quarantine orders of public health officers.

b. Local Boards of Health and Health Officers Have Duty to Investigate, Suppress and Remove Nuisances and Conditions Detrimental to Life and Health
Authority: Public Health Law 1303 provides that every local board of health and local health officer shall receive and examine into all complaints concerning nuisances, or causes of danger or injury to life and health within the health district. Every local board of health shall order the suppression and removal of all such nuisances and conditions.

Application of this provision to a situation arising from bioterrorism would assume the resulting contamination of property which might be identified and termed a *nuisance*.

c. City Commissioner of Health (or Health Officer in Cities with Population of Less than 175,000) May Exercise Extraordinary Powers in Case of Great and Imminent Peril to the Public Health
Authority: Public Health Law 370(1) provides that in case of great and imminent peril to the public health of the city, it shall be the duty of the city health commissioner, or health officer in cities having a population of less than 175,000, with the approval and consent of the legislative authority if it is practicable to convene such authority for prompt action, or if not, when approved by the board of estimate or similar authority, to take such measures and to do, order or cause to be done such acts and to make such extraordinary expenditures, in excess of the sum appropriated to the city department of health, as provided by law, for the preservation and protection of the public health of such city as he or she may deem necessary and proper.

d. Chief Executive of County, City, Town or Village May Promulgate Emergency Orders Following Proclamation of a Local State of Emergency
Authority: Executive Law 24(1) provides that following the proclamation of a local state of emergency and during its continuance, the chief executive may promulgate local emergency orders to protect life and property or to bring the emergency situation under control.

Control of roads and public areas — As illustration, such orders may, within any part or all or the territorial limits of such local government provide for: the establishment of a curfew and the prohibition and control of pedestrian and vehicular traffic, except essential emergency vehicles and personnel; the prohibition and control of the presence of persons on public streets and places.

Designation of emergency facilities—Such orders may also provide for the establishment or designation of emergency medical shelters.

e. Chief Executive of County, City, Town or Village May Suspend Local Law Under Specified Conditions

Authority: Pursuant to Executive Law 24(1)(g), a local emergency order may provide for the ***suspension*** within any part or all of its territorial limits of any of its local laws, ordinances or regulations, or parts thereof, subject to Federal and State constitutional, statutory and regulatory limitations, which may prevent, hinder, or delay necessary action in coping with a disaster or recovery from a disaster. This extraordinary power is first subject to two conditions: (1) a request has been made by the appropriate chief executive of the county or city to the Governor in accordance with Executive Law 24(7); or (2) the Governor has declared a state of disaster emergency pursuant to Executive Law 28. Also, such suspension of any local law, ordinance or regulation is subject to specified standards and limits:

(i) no suspension shall be made for a period in excess of 5 days, provided, however, that upon reconsideration of all the relevant facts and circumstances, a suspension may be extended for additional periods not to exceed 5 days each during the pendency of the state of emergency;

(ii) no suspension shall be made which does not safeguard the health and welfare of the public and which is not reasonably necessary to the disaster effort;

(iii) any such suspension order shall specify the local law, ordinance or regulation, or part thereof, suspended and the terms and conditions of the suspension;

(iv) the order may provide for such suspension only under particular circumstances, and may provide for the alteration or modification of the requirements of such local law, ordinance or regulation suspended, and may include other terms and conditions;

(v) any such suspension order shall provide for the minimum deviation from the requirements of the local law, ordinance or regulation suspended consistent with the disaster action deemed necessary; and

(vi) when practicable, specialists shall be assigned to assist with the related emergency actions to avoid adverse effects resulting from the suspension.

f. Chief Executive of County and Certain Chief Executives of Cities May Request Governor to Provide Assistance Following Declaration of Local State of Emergency Involving Disaster Beyond Capability of Local Government to Meet

Authority: Executive Law 24(7) provides that whenever a local state of emergency has been declared pursuant to this section, the chief executive of the county in which the local state of emergency has been declared, or where a county is wholly contained within a city, the chief executive of the city, may request the Governor to provide assistance under the Executive Law, provided that such chief executive determines that the disaster is beyond the capacity of local government to meet adequately and State assistance is necessary to supplement local efforts to save lives and to protect property, public health and safety, or to avert or lessen the threat of a disaster.

IV. PROVISIONS GOVERNING CRITICAL AREAS

A. SAFE DISPOSAL OF INFECTIOUS WASTE
Authority: See Public Health Law Article 13, Title XIII, entitled Storage, Treatment, and Disposal of Regulated Medical Waste. Included are the following definitions:
Regulated medical waste – 1389-aa(1)
Infectious agents – 1389-aa(5)
Cultures and stocks – 1389-aa(1)(a)
Human pathological waste– 1389-aa(1)(b)
Sharps– 1389-aa(1)(d)
In addition, see 6 NYCRR 364.9, which establishes a program for tracking and managing medical waste shipments pursuant to the Environmental Conservation Law.

B. SAFE DISPOSAL OF HUMAN REMAINS
Authority: See generally Public Health Law Article 41, Title IV (Registration of Deaths: Burial Permits); and Public Health Law Article 42 (Cadavers). Public Health Law 4140 requires that in the case of a death occurring from a disease which is designated in the State Sanitary Code as a communicable disease, no permit for the removal or other disposition of the body shall be issued by the registrar, except to a funeral director or undertaker licensed in accordance with Public Health Law Article 34 (Funeral Directing), under such conditions as may be prescribed in the State Sanitary Code.

C. DESTRUCTION OF PROPERTY
Authority: Public Health Law 2100 (2)(b) provides that every local board of health and every health officer may, subject to the provisions of the State Sanitary Code, prohibit and prevent all contact with or use of infected premises, places and things, and require, and if necessary, provide the means for their thorough purification and cleansing before contact may be resumed. According to an 1894 Opinion of the Attorney General, it was within the power of a local board of health to destroy clothing which had become infected with infectious or contagious disease germs.

D. LICENSING AND APPOINTMENT OF HEALTH PERSONNEL
1. Coroner, Coroner's Physician and Medical Examiner
Authority: Outside of New York City, County Law Article 17-A applies and describes their duties and manner of investigating deaths within their jurisdiction.

2. Physicians
Authority: Education Law Article 131 (Medicine); Education Law Article 131-A (definitions of professional misconduct applicable to physicians); Public Health Law 230 et seq.(Professional Medical Conduct); Public Health Law Article 33 (Controlled Substances)

3. Physician's Assistants
Authority: Education Law Article 131-B (Physician Assistants and Special Assistants); Education Law Article 131-A (definitions of professional misconduct applicable to

physician's assistants and special assistants); Public Health Law Article 33 (Controlled Substances)

4. Nurses
Authority: Education Law Article 139 (Nursing); Public Health Law Article 33 (Controlled Substances)

5. Pharmacists
Authority: Education Law Article 137 (Pharmacy); Public Health Law Article 33 (Controlled Substances)

6. Veterinarians
Authority: Education Law Article 135 (veterinary medicine)

7. Emergency Medical Technicians
Authority: Public Health Law Article 30 (Emergency Medical Services); 10 NYCRR Part 800 (State Emergency Medical Services Code)

8. Funeral Directors
Authority: Public Health Law Article 34 (Funeral Directing)

E. COLLECTION OF LABORATORY SPECIMENS: CHAIN OF CUSTODY
Physical evidence of an act of bioterrorism may take the form of a biohazard specimen. Whenever such a specimen is to be appropriately collected by members of the health service system or law enforcement agencies and transported to an appropriate laboratory for testing (e.g. Wadsworth Center for Laboratories and Research), material submitted as physical evidence must comply with policies that ensure its integrity and safe handling.
Authority: Executive Law 995-b(1) requires the Commission on Forensic Science to develop minimum standards for all forensic laboratories in New York State. See also 9 NYCRR Part 6190 (New York State Accreditation Program for Forensic Laboratories).

F. ACCESS TO AND DISCLOSURE OF PROTECTED HEALTH INFORMATION
Authority: In addition to State law cited below, recently enacted Federal law must also be considered. See especially the Federal Health Insurance Portability and Accountability Act (HIPAA) and accompanying regulations at 45 CFR Pts. 160 & 162.

Hospitals licensed under Public Health Law Article 28 are required to ensure the confidentiality of patient records. Original medical records, information from or copies of records shall be released only to hospital staff involved in treating the patient and individuals as permitted by Federal and State laws. (10 NYCRR 405.10 (a)(5)).

Nursing homes must keep confidential all information contained in the residents' records except when release is required by the resident or by law. (10 NYCRR 415.22 (d)).

Confidential HIV related information is defined at Public Health Law 2780(7). No person who obtains such information in the course of providing any health or social

services pursuant to a release of confidential HIV related information may disclose or be compelled to disclose such information except as provided in Public Health Law 2782 and Article 27-F.

Release of patient medical records procedures are provided for in Public Health Law 17 upon the written request of the patient to an examining, consulting or treating physician or hospital.

Access to patient information is governed generally by Public Health Law 18.

V. ENFORCEMENT

***Authority*:**

A. Criminal penalties — Public Health Law 12-b(2) provides that a person who willfully violates any provision of the Public Health Law or any regulation lawfully made or established by any public officer or board under authority of the Public Health Law, the punishment for violating which is not otherwise prescribed by the Public Health Law or any other law, is punishable by imprisonment not exceeding one year, or by a fine not exceeding $2000 or by both.

B. Physician discipline — A physician may be charged via the disciplinary processes of Public Health Law 230 with professional misconduct pursuant to Education Law 6530(16) for a willful or grossly negligent failure to make a communicable disease report required under 10 NYCRR 2.10.

C. Civil penalties — Pursuant to Public Health Law 12 and 206, any person, including health facilities licensed under Public Health Law Article 28, who violates any provision of the Public Health Law or regulations made pursuant to it shall be liable for a civil penalty of not to exceed $2000 for every such violation. A health facility licensed under Public Health Law Article 28 may subject its operating certificate to revocation, pursuant to Public Health Law 2806(1) for violation of the Public Health Law or applicable regulations, including communicable disease reporting requirements.

D. Obstruction or interference with State health inspector — No person shall interfere with or obstruct the inspection or examination of any occupant of any house, building, vessel or other premises by the State Commissioner of Health in the discharge of her official duties.(10 NYCRR 1.11).

Summary of Public Officers Law Coverage Regarding Volunteers

In April 2004, the Department of Health received an opinion from the Attorney General's (AG) office, which confirmed the application of P.O.L. § 17 to the NYS DOH Volunteer Database. Public Officers Law § 17 provides defense and indemnification to **employees** of the State for acts or omissions that occur while the employee was acting within the scope of his/her employment or official duties. The definition of employee includes those volunteers "expressly authorized to participate in a State sponsored volunteer program." Where injury occurs because of his or her intentional wrongdoing or recklessness, the volunteer would not be covered under § 17. When Public Officers Law § 17 applies, the State is not substituted as the defendant in the action; the volunteer is the named defendant. The State, through the Attorney General's office, provides a legal defense (attorney, assistance, etc.) for the employee. Should the injured individual prevail at trial, the judgment would be against the individual volunteer, but because the State provides indemnification, the State would pay the judgment and not the volunteer.

Although the AG's opinion references the database of volunteer physicians created in conjunction with the Medical Society of the State of New York (MSSNY), the opinion does not limit the application of P.O.L. § 17 to only those on the MSSNY list. Rather, the opinion addressed whether or not the volunteer database established by the State and its proposed use qualify as a "state sponsored volunteer program" triggering the application of P.O.L. § 17 to volunteers. This determination by the AG is not profession specific (i.e., limited to the physician members of MSSNY). Any professional[1] volunteer who is a part of the database and who is activated and authorized to act by NYSDOH during an emergency will be afforded the benefits provided by P.O.L. § 17[2]. Those who act on their own and who are not on the volunteer database will **not** be offered the benefits of P.O.L. § 17. **The volunteers must be activated from the list and expressly authorized by the State to act in order to qualify for the statutory provisions**. In addition, this statutory liability coverage would be secondary to any malpractice or liability insurance coverage the volunteer may have[3]. Volunteers should read their policy or contact their carrier to determine whether or not the policy would cover actions taken while acting as a volunteer. Should volunteer activities be excluded from their policy, P.O.L. § 17 would be the volunteer's primary protection.

In the event there is a specific statute, e.g., § 304 of the Homeland Security Act, that provides protection for public health emergency volunteers, P.O.L. § 17 cannot be overlooked. For example, section 17 may be relevant if the volunteer is involved in the smallpox vaccination program. If § 304 of the Homeland Security Act[*] does apply and an injured vaccinee attempts to bring a suit against the individual volunteer in state court, the state, county or local government would provide an attorney for the volunteer. The attorney would be needed to argue the application of § 304 on behalf of the volunteer in order to get the state suit against him/her dismissed.

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[1] Doctors, nurses, pharmacists, dentists, veterinarians, etc.

[2] P.O.L. § 17 protection will be available provided the requisite criteria are met (e.g., activated and deployed by NYSDOH, no intentional wrongdoing, timely notice to the AG's office).

[3] The volunteer would still have to give the AG's office timely notice and meet the other procedural requirements for coverage in order to qualify for P.O.L. § 17 protection, which would be needed if the judgment exceeded their policy limit.

[*] Section 304 of the Homeland Security act provides immunity from liability for certain volunteers involved in the smallpox vaccination program. For more information, see separate document entitled Summary of Section 304 of the Homeland Security Act.

Section 2: Surveillance and Laboratory Testing

I. Overview

II. Objectives

III. Surveillance for Human Infection

IV. Laboratory Diagnosis of Human Pandemic Influenza

V. Epidemiologic Surge Capacity

VI. Activities by Pandemic Period

Appendices:

2-A: Novel Influenza Surveillance and Reporting Criteria
2-B: Novel Influenza Case Report Form
2-C: Diagnostic Laboratory Testing For Pandemic Influenza
2-D: Virus Detection History Form
2-E: Novel Influenza Case Screening Form (Under Development)

I. Overview

Established local and statewide surveillance systems are fundamental for detecting influenza activity, identifying the circulating strains, and monitoring the burden of influenza morbidity and mortality. Enhancing existing influenza surveillance networks can lead to rapid detection of a novel virus strain with pandemic potential. For this plan, the terms 'novel virus strain' or 'novel influenza' include highly pathogenic avian influenza (HPAI) strains with evidence of more than occasional human cases and some capacity for human to human transmission such as the H5N1 strain currently circulating in Asia and Europe in January 2006, even though this strain does not appear to be capable of causing a pandemic at this time. A few of the activities in this section may also apply to some situations when there are concerns about human influenza-like illness cases epidemiologically associated with birds infected with other HPAI or low pathogenic strains or other animals with influenza (e.g., dogs, horses, pigs) even though transmission to humans has been infrequently or never documented previously.

This section on human case surveillance and laboratory testing will cover:

- Surveillance for human infection with a novel pandemic strain of influenza,
- Laboratory diagnosis of human cases associated with novel virus strains, including HPAI,
- Human pandemic influenza, and
- Epidemiologic surge capacity.

II. Objectives

- Ensure early detection of cases and clusters of respiratory infections that might signal the presence of a novel influenza virus.
- Ensure laboratory resources are available to rapidly detect the introduction of a novel virus.
- If a novel strain of influenza is confirmed, ensure prompt and complete identification and reporting of potential cases to facilitate control and management of local outbreaks.
- Once a pandemic has been confirmed, monitor:
  - Changes in the circulating virus, including development of antiviral resistance,
  - Impact on human health by conducting an ongoing assessment of the morbidity and mortality.

III. Surveillance for Human Infection

The level of surveillance will depend on the global, regional, and local epidemiology of an influenza pandemic. Surveillance activities will be utilized within the framework of the pandemic phases (See Section of plan that outlines the phases) as developed by the World Health Organization (WHO). In addition, actions may be different if infections

caused by a novel influenza virus occur in the United States or in another country or if person-to-person spread is slow, limited or widespread.

In conjunction with recommendations from other public health partners, such as the Centers for Disease Control and Prevention (CDC) and WHO, NYSDOH will provide updated guidance to medical providers and local health departments on an ongoing basis. Activities outlined below will be contingent on local, national, and international influenza activity at the time.

A. Components of Surveillance

In addition to surveillance activities conducted by local health departments (LHDs), the NYSDOH has been routinely coordinating a comprehensive statewide influenza surveillance system. These activities collect data from multiple partners throughout the state. Information compiled includes laboratory testing data, nosocomial outbreak reports, influenza-like illness by age group, hospitalizations, and pediatric deaths. These routine systems could be enhanced during an influenza pandemic.

- **Virologic Surveillance:**

  - **WHO and/or National Respiratory and Enteric Virus Surveillance System (NREVSS):** There are 13 participating laboratories in New York State that report weekly throughout the influenza season. Data reported are the number of specimens tested and the number positive for influenza by type. Of the 13 labs, three also report subtype. In addition to providing information on when and where influenza activity is occurring, the data also identify which viruses are circulating. The total number of specimens tested is also reported to allow the calculation of the percent of specimens that are positive.

  - **Electronic Clinical Laboratory Reporting System (ECLRS):** Individual positive laboratory specimens are reported to NYSDOH via ECLRS. It provides real-time data that allows daily assessment of when and where influenza activity is occurring.

- **Outpatient Surveillance:**

  - **Surveillance for Influenza-Like Illness:** There are 79 (1/140,000 population) medical providers throughout New York State, excluding New York City, who are currently participating in the U.S. Influenza Sentinel Provider Network (SPN). During the influenza season May through October, they voluntarily report weekly the total number of patients seen and the number of patients presenting with influenza-like-illness (ILI) by age group. This data is analyzed weekly to assess influenza-like illness morbidity in the outpatient setting. Each provider is also allowed to submit six specimens throughout the season for viral testing at NYSDOH Wadsworth Center.

- **Local Health Department Telephone Emergency Department Contact Surveillance System:** This reporting system is available on the NYSDOH Health Information Network (HIN) for local health departments to report findings of daily contact with emergency departments. The data are reviewed seven days a week by NYSDOH staff for any significant findings. Unusual illness reports and clusters are followed-up by state and LHD epidemiologists. A daily summary is distributed Monday through Friday to NYSDOH staff.

- **Syndromic Surveillance:**

  - **Medicaid Prescription Data:** Electronic data is received seven days a week. Data includes influenza antiviral prescriptions by zip code. This allows an assessment of antiviral use in the Medicaid outpatient community (it excludes antiviral medications that are administered to inpatients and nursing home residents). Other medications that may be used as an indicator of respiratory illness are also analyzed.

  - **National Retail Data Monitor – Real-Time Outbreak and Disease Surveillance (RODS):** Over-the-counter retail pharmaceuticals sales data are reported daily by 20,000 participating pharmacies nationwide. Although influenza-specific medications are not included, other categories can be used as indicators of possible respiratory illness.

  - **Electronic Emergency Department Syndromic Surveillance System:** Thirty-six hospitals in 14 counties outside NYC currently submit an electronic file seven days a week with chief complaint for all patients presenting to the emergency department within the past twenty-four hours. Chief complaints are grouped into "syndromes," including a febrile respiratory syndrome, to categorize clinical presentations of the patients seeking medical attention. Statistical methods are used to determine if there are any short-term or sustained increases in patients presenting with possible respiratory illness.

    Within NYC, New York City Department of Health and Mental Hygiene (NYCDOHMH) receives data for the previous 24 hours from 48 NYC emergency departments. Visits are also grouped into syndromes, including Respiratory and Fever-flu-like illness. Data is analyzed (citywide temporal trend analysis, spatial cluster analysis, and age-specific analysis) 365 days a year.

  - **BioSense System:** Selected ICD-9 coded outpatient visits at Department of Defense ambulatory-care centers and Department of Veterans Affairs outpatient clinics generate Sentinel Infection Alerts. NYSDOH investigates all alerts that may indicate single cases of diseases of public health significance or clusters of disease occurrences.

- **Hospital/Healthcare Facility Surveillance:**

  - **Nosocomial Outbreak Reporting:** Acute care and long-term care facilities are required throughout the year to report any increased incidence in respiratory illness, including suspected and confirmed influenza outbreaks, to NYSDOH Bureau of Communicable Disease Control (BCDC).

  - **Weekly Influenza Hospitalizations:** During the influenza season, acute care facilities report weekly via the Healthcare Emergency Response Data System (HERDS) the number of inpatients with laboratory-confirmed influenza by age group. Weekly data analysis provides an indicator of severity of illness by age group.

  - **Emerging Infections Program (EIP) Pediatric Influenza Hospitalization Surveillance:**

    - **Prospective Surveillance:** The NYSDOH Emerging Infections Program performs active surveillance throughout the influenza season for laboratory-confirmed pediatric influenza hospitalizations in 15 counties in the Capital District (N=8) and Western New York (N=7) Regions. NYSDOH surveillance officers (SO) in these regions perform active influenza surveillance by utilizing HERDS, ECLRS and the HIN. In addition, they routinely communicate with the hospital laboratories and infection control practitioners throughout the season. A case report form, which captures vaccine history, underlying illness, co-morbidities, and testing methods used by the laboratory, is completed on each identified pediatric influenza hospitalization. This data is entered into a database and transmitted to CDC each week.

    - **Retrospective Surveillance:** At the end of each influenza season, the SOs participate in a retrospective audit of pediatric influenza hospitalizations. The CDC has supplied each state with a list of ICD-9 codes that correspond with a wide range of symptoms including fever, pneumonia, and bronchiolitis. The goal is to determine if any children were admitted to a hospital during the flu season, but were not captured using active surveillance. To accomplish this, the NYSDOH Division of Epidemiology Statistical Unit obtains SPARCS data, which includes the hospital, medical record number, date of birth, admission and discharge dates and ICD-9 codes, from hospitals in two to four counties. Using these lists, the SOs review approximately 400-600 charts to determine if any child may have had an influenza test performed in a doctors office prior to admission. The extracted data is transmitted to the CDC.

    - **New Vaccine Surveillance Network:** Children hospitalized for influenza who are born from November 1, 2003 through April 1, 2005 and reside in the surveillance area of Monroe County on the date of hospital admission will be eligible for enrollment as cases. Case children will be enrolled after consent

to participate has been received from the child's parent or guardian. Attempts will be made to enroll four children not hospitalized with influenza for each child hospitalized with an influenza infection to evaluate the vaccination program.

- **State-level Assessment of Influenza Activity:**

State and Territorial Epidemiologists Report: Current influenza activity level throughout the state is assessed weekly and reported to the CDC from October to May.

Definition of Influenza Activity Levels:

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

- **Mortality Surveillance:**

  - **Surveillance for Influenza and Pneumonia Deaths**: As part of the 122 cities surveillance system for pneumonia and influenza deaths, eight cities in NYS report weekly the total number of deaths and those with influenza or pneumonia listed as a contributing cause of death.

- **Pediatric Influenza-Associated Death:** Medical providers are required by regulation to immediately report by telephone any suspected or confirmed influenza-associated deaths in patients less than 18 years of age to the local health department where the patient resides.

- **Death Certificates:** All death certificates with either (1) influenza listed as the immediate cause of death, (2) death due to or as a consequence of influenza, or (3) influenza listed as a significant condition contributing to death but not related to the immediate cause identified are forwarded weekly to NYSDOH Division of Epidemiology for review.

B. Enhanced Surveillance Activities

Surveillance activities will be modified based on the phase and level of influenza activity. Following is a list of enhanced influenza surveillance activities that could be initiated as needed throughout the phases of the pandemic.

- **Virologic Surveillance:**

  - Increase the number of specimens to be submitted through the SPN by provide testing for SPN-submitted specimens beyond the influenza season.

  - Expand laboratory-confirmed influenza reporting from ECLRS-participating laboratories to all laboratories. Although implementation of the laboratory confirmed influenza reporting regulation as of January 2004 requiring ECLRS-participating laboratories to report, the regulation does allow NYSDOH to mandate the complete spectrum of communicable disease reporting.

  - Eelectronically reported ECLRS data will be the primary surveillance method used to determine where laboratory confirmed influenza is circulating in NYS during the following periods:
    - **Interpandemic**
    - **Pandemic Alert and *No* *Evidence of HPAI or Other Novel Influenza Virus Requiring Testing in a BSL-3 Laboratory***
    - **Pandemic**

  - **During the Pandemic Alert and Pandemic Periods when *HPAI or Other Novel Influenza Virus Requiring Testing in a BSL-3 Laboratory*** NYSDOH Wadsworth laboratory results, which are reported on ECLRS, will be the primary surveillance method used to determine where laboratory confirmed novel influenza is circulating in NYS.

- **Outpatient Surveillance:**

  - Implement provider influenza case reporting as necessary during the Pandemic Alert and Pandemic Phases prior to the novel influenza strain being identified in

NYS. During the pandemic period after the virus has been identified in NYS, providers may be asked to report cases of pandemic influenza with an unusual clinical presentation. It is not expected that provider individual case reporting will be a primary method for surveillance during the Pandemic Period.

- Recruit additional sentinel surveillance providers, as either permanent participating providers in the SPN or for short-term reporting on an as-needed basis, to report aggregate data for the number of persons with ILI by age group. Alternative methods to collect ILI data either through data entry on the NYSDOH HPN or telephone reporting using an integrated voice response (IVR) system could be considered. Since it is expected that there will be staffing shortages during a pandemic, recruiting of medical providers would focus on those providers with electronic data systems and/or active HPN accounts. Data will be analyzed daily.

- Consider enhanced disease surveillance at points of entry to the country/state (airports, seaports, and/or other ports), if an influenza pandemic begins outside the United States (see Section 8: Travel-Related Disease Control and Community Prevention).

- **Hospital/Healthcare Facility Surveillance:**

  - Modify HERDS influenza hospitalization data reporting as necessary. Data collected and frequency of reporting can be adjusted as indicated to monitor the pandemic and ensure recommended surveillance and control measures are appropriate. It is anticipated that during widespread pandemic influenza activity, HERDS hospitalization data will be the primary surveillance method used to assess severity of illness.

  - Consider expanding EIP hospitalization project in the EIP catchment area to include adults.

  - Local and/or state health department staff will participate in CDC active hospital-based hospitalization surveillance initiatives, which may include specimen collection and virologic testing from a subset of patients.

- **State-level Assessments:**
  State and Territorial Epidemiologists Report - Current influenza activity level throughout the state will continue to be assessed weekly but reported to the CDC year-round.

- **Mortality Surveillance:**
  - Expand reporting of influenza-associated deaths beyond the pediatric age group as needed based on the analysis of the current epidemiologic data and/or CDC case definitions.

- Develop a HERDS reporting system for hospitals to report daily aggregate data on the number of suspected and confirmed influenza-associated deaths. It is anticipated that this electronic reporting system will be the primary method to collect daily data necessary to monitor the mortality of the pandemic.

- Provide mortality data to CDC as needed to help guide national response measures. Case definitions and reporting procedures will be communicated by CDC via Epi-X.

- Participate in national and international surveillance activities as indicated.

C. Criteria for Assessing and Reporting Possible Pandemic Influenza Cases

NYSDOH will develop and distribute to healthcare providers the current CDC and NYSDOH recommendations for enhanced surveillance, case reporting, and laboratory testing. The criteria listed below are based on the current information known about the novel H5N1 influenza virus. These criteria may need to be modified throughout the pandemic phases according to the circulating virus and the known epidemiology of the infection at that time. It is anticipated that individual case reporting will not be feasible once pandemic influenza has been confirmed in New York State. Surveillance during the pandemic period will focus on data collection mechanisms to assess morbidity and mortality. Select individual case investigations may need to be conducted to guide prevention and control recommendations.

Medical provider activities:

- Providers should question all patients who present to health care settings with fever and respiratory symptoms regarding possible travel and occupational exposure to influenza A (H5N1) or other novel influenza virus (see Section 5: Clinical Guidelines).

  Criteria for Assessing a Possible Novel Influenza Case:

  - **Clinical Criteria:**
    - Severe illness: Hospitalized with severe illness, including pneumonia or ARDS
    - Mild illness:
      - Fever (temperature > 38° C or 100.4° F) and
      - One or more of the following: sore throat, cough, or dyspnea

  - **Epidemiologic Criteria:**
    - Travel Risk (within 10 days of symptom onset)
      - Visited or lived in an area affected by highly pathogenic avian influenza A outbreaks in domestic poultry or where a human case of novel influenza has been confirmed.

- ♦ Had direct contact with poultry, in an area affected by highly pathogenic avian influenza A. Direct contact with poultry is defined as touching well, sick, or dead birds, poultry feces or contaminated surfaces, or consuming uncooked poultry.

- ♦ Had close contact (within 3 feet) with a person with confirmed or suspected novel influenza.

▪ Occupational Risk (within 10 days of symptom onset)

- ♦ Work on a farm or in a live poultry market or process or handle poultry infected with known or suspected avian influenza viruses.

- ♦ Work in a laboratory that contains live animal, bird, or novel human influenza viruses.

- ♦ Healthcare worker in direct contact with suspected or confirmed novel influenza case.

Criteria for Reporting:

- **During the Interpandemic and Pandemic Alert Periods and *No Evidence of HPAI or Other Novel Influenza Virus in NYS***: Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
  - o Severe illness AND, within 10 days of onset, either travel to an affected area (even if no direct contact with poultry or suspected or confirmed human cases) or occupational risk.

  - o Mild illness AND, within 10 days of onset, one or more of the following: direct contact with ill poultry in an affected area, close contact with a suspected or confirmed human case of novel influenza, or occupational risk.

- **During the Interpandemic and Pandemic Alert Periods and *Documented HPAI or Other Novel Influenza Virus in non-human animals in NYS***: Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
  - o Severe or mild illness
    AND
  - o Reside in or travel within 10 days of onset to a locally affected area
    AND
  - o Direct contact with ill poultry or other implicated animal in an affected area OR close contact with a suspected or confirmed human case of novel influenza OR occupational risk.

- **During the Pandemic Period and *No Documented Pandemic Influenza Virus in NYS*:** Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
  - Severe or mild illness
    AND
  - Within 10 days of onset travel to a locally affected area (even if no direct contact with poultry or suspect or confirmed human cases) OR occupational risk.

  Once an influenza pandemic has begun, it is expected that it would only be a brief period of time before the virus is identified in NYS. Therefore it is anticipated that individual case reporting of suspect cases during the pandemic will be brief.

- **During the Pandemic Period *and Documented Pandemic Influenza Virus in NYS*:** Patients meeting the mild illness clinical criteria will be classified as a suspected pandemic influenza case. However, individual case reporting will likely be suspended. The local and/or state health department will investigate any unusual cases reported by medical providers. In NYC, web-based reporting will be available for provider reporting. Outside NYC, hospital infection control practitioners are able to report individual cases of influenza through the NYSDOH Communicable Disease Electronic Surveillance System (CDESS).

Reporting:

- Healthcare providers should immediately report any patient meeting the surveillance and reporting criteria for novel influenza based on the current pandemic period to the LHD.
  - If unable to reach the LHD, contact the NYSDOH: During business hours contact the appropriate Regional Epidemiologist. If unavailable, contact the Bureau of Communicable Disease Control at (518) 473-4436.
    - Outside of business hours, contact the NYSDOH After-Hours Duty Officer at 1-866-881-2809.
    - In New York City, contact the New York City Department of Health and Mental Hygiene (NYSDOHMH) through the Provider Access Line at 1-866-NYC-DOH1 (1-866-692-3641) during business hours. At all other times, call the Poison Control Center at 1-212-764-7667.
    - The NYSDOH Pandemic Influenza Case Report Form (Appendix 2-B) or other form being used at that time of the report should be completed immediately and forwarded to the LHD.

LHD Surveillance and Control Activities during Periods of Individual Case Reporting:

- Receive reports from healthcare providers of potential human novel influenza cases to determine if the patient meets the surveillance criteria using the Novel Influenza Case Screening Form (Appendix 2-E).

- If the patient meets the surveillance and reporting criteria for a novel influenza virus infection, review appropriate infection control precautions with the medical provider.
  - Respiratory hygiene and cough etiquette,
  - Droplet precautions when entering patient room, and
  - Standard precautions to include gloves and gowns when indicated.

  These precautions should be continued for a minimum of five days (see Section 4: Infection Control).

  Home isolation may be employed early during an influenza pandemic, as outlined in Section 8, Travel-Related Disease Control and Community Prevention, to slow the spread of influenza in communities. Refer to Section 8 for patient management in the home if the patient is discharged within five days of onset of symptoms or is symptomatic.

- Patients meeting the current surveillance case definition, or those with an influenza infection with an unusual clinical presentation should be interviewed using the NYSDOH Novel Influenza Case Report Form (Appendix 2-B) or other form being used at that time of the report to determine possible risk factors and mode of transmission. When indicated in Section 8, use the Pandemic Influenza Contact Record form (Appendix 8-C) to identify close contacts.

- Assess case information to determine if there is increased likelihood of a novel influenza infection:
  - Interpandemic and Pandemic Alert Periods:
    - Direct contact with a case of suspected or confirmed human novel influenza.
    - Direct contact with poultry (well, sick, or dead), consumption of uncooked poultry, or direct exposure to environmental contamination with poultry feces in affected area.
  - Pandemic Period and ***No Documented Pandemic Influenza Virus in NYS***: Close contact in an affected area with an ill person or non-human animal suspected or confirmed to have novel influenza virus infection.

- Report immediately by telephone to the appropriate NYSDOH Regional Epidemiologist or BCDC any patient who meets the novel influenza surveillance criteria based on the period of the pandemic (Appendix 2-A).

- The report should be initiated on the NYSDOH CDESS. If influenza testing at Wadsworth is indicated, the Health Information Network (HIN) identification number generated needs to be included on all paperwork associated with the case, including the lab specimen submission form.

- In conjunction with the NYSDOH, ensure that appropriate specimens are collected and shipped for testing at Wadsworth (Attachment 2-C).

- Surveillance of contacts of cases infected with a novel influenza virus may be helpful in *early* control efforts. When contact identification and management is indicated, surveillance of contacts will be conducted by LHDs, with assistance from the NYSDOH as needed (see Section 8: Travel-Related Disease Control and Community Prevention).

- Quarantine may be employed early during a flu pandemic to slow the spread of influenza in communities (see Section 8).

NYSDOH Activities:

- Immediately report to the appropriate NYSDOH Regional Office and LHD any patients meeting the surveillance and reporting criteria that are reported by the medical provider directly to NYSDOH.

- Wadsworth Center will notify NYSDOH Bureau of Communicable Disease Control (BCDC) if laboratory specimens are received on patients for whom there is no HIN ID included with the paperwork. If the case has not been reported on the HIN, NYSDOH BCDC will notify the appropriate Regional Office and/or LHD for follow-up.

- Report suspected and confirmed cases of novel influenza infection to the CDC Emergency Response Hotline to obtain a CDC case ID number. Redacted case report forms will be faxed to CDC.

IV. Laboratory Diagnosis of Human Pandemic Influenza

The following describes the procedures for submitting samples to the Virus Reference and Surveillance Laboratory at the Wadsworth Center. Submitters should also familiarize themselves with the testing capability of their local laboratory and utilize that facility when appropriate services are available. It should be noted that the laboratory procedures used for testing may change depending on the characteristics of the pandemic strain. The Wadsworth Center will communicate with the CDC and forward samples and isolates for confirmatory testing when appropriate. During the early phase of the pandemic, prior to release of positive RT-PCR results obtained by commercial and hospital laboratories, the result should be confirmed either by the Wadsworth Center or CDC.

- **Samples for testing and surveillance**

The Wadsworth Center laboratory receives samples for testing for respiratory viruses from multiple sources.

  - **Sentinel surveillance program**. Physicians participating in the CDC Influenza Sentinel Physician Network are asked to send six specimens per season to the Wadsworth Center for detection and typing. In the 2003-2004 respiratory season,

submissions were received from physicians in 39 counties.

- **Outbreak investigations**. The Wadsworth Center laboratory works closely with epidemiologists in the NYSDOH and NYCDOHMH to detect and type respiratory viruses in reported outbreaks, especially in nursing homes.

- **Suspect cases of avian influenza or other novel influenza virus**. The Wadsworth Center will conduct appropriate testing and send samples to the CDC, as necessary, for additional or confirmatory testing on patients suspected of infection with avian influenza.

- **Reference function**. Wadsworth Center regularly receives influenza isolates from commercial and hospital laboratories that do not have sub-typing capability.

- **Diagnostic assays that will be used on samples received from NYS patients**

  Two procedures will be performed in parallel on incoming <u>original</u> diagnostic samples.

  1. A real-time RT-PCR assay for detection of influenza A and influenza B viruses will be performed on the original sample. The assay will detect influenza A, H1 and H3 sub-types. Based on an analysis of sequences currently stored in public databases, other influenza A sub-types, such as A/H5N1, should also be detected, but identification of these viruses has not yet been validated in this assay. The result will be available in 24 to 72 hours depending on the sample load that the laboratory is experiencing.

  2. Again, depending on the sample load and on the history obtained with the sample, the original specimen will be inoculated into three cell types that support replication of respiratory viruses and appropriate reflex testing will be performed. The result will be available in 4 to 14 days depending on how readily the virus grows in cell culture.

  - If the sample is from a patient who has a history of travel to an area where the avian influenza virus is endemic, the sample will <u>not</u> be inoculated into cell culture. The real-time RT-PCR detection assay will be performed and if the presence of an influenza A virus is confirmed, sub-typing will be attempted on the original sample using H1-, H3- and H5- and H7-specific assays. Additionally, a portion of the original sample will be sent to CDC for confirmatory testing. If an H5 influenza virus is shown not to be present, the sample will be inoculated into cell culture.

  - Once the isolate has been amplified in cell culture and has been confirmed as influenza virus, sub-typing of the hemagglutinin (HA) and neuraminidase (NA) genes will be performed using conventional RT-PCR if subtyping has not already been achieved on the original sample. The sub-typing result will be available in 10 to 21 days depending on how well the isolate grows in cell culture and on the

sample load that the laboratory is experiencing. If strain identification based on sequence analysis is required, the result will be available approximately one week after the sub-type has been determined.

- Under some circumstances, the original diagnostic sample may be tested using a rapid antigen detection assay.

- Assays based on the real-time PCR technology are also available to detect the presence of specific respiratory viruses including adenovirus, enterovirus, respiratory syncytial virus and human metapneumovirus. These assays will be used as appropriate, and as time permits, for epidemiological purposes. Additionally, once the presence of avian influenza virus has been ruled out, culture will be performed to detect the presence of other respiratory viruses.

- Additionally, if there is evidence of the circulation of influenza viruses that are resistant to the currently available anti-viral agents, the sequence of the NA and matrix genes can be monitored for the presence of resistance mutations.

- **Method and timing of specimen collection**

  - Respiratory specimens should be collected within 72 hours of symptom onset and transported quickly to the Wadsworth Center on ice packs at 4°C. If transport is not possible within 48 hours, sample should be frozen at -70°C and transported on dry ice. Do not freeze at -20°C.

  - Use only Dacron or rayon swabs with a plastic or wire shaft. Do not use calcium alginate or wooden-shafted swabs.

  - All specimens must be clearly labeled with the patient identifier, type of specimen, and date and time of collection.

  - Acceptable respiratory specimens for patients who do not have a history of travel to an area where the H5N1 avian influenza virus is endemic and are not suspected to be infected with a novel influenza virus include:

    - **Nasopharyngeal aspirate**: Requires source of suction (syringe, vacuum pump, or wall suction), specimen trap with two outlets, and catheter (no. 6 to 14 depending on size of patient). Without applying suction, insert catheter through nose into posterior nasopharynx (approximately the distance from tip of the nose to the external opening of the ear when measured in a straight line). Apply gentle suction, leaving catheter in place for a few seconds, then withdraw slowly. Suction contents of a vial of viral transport medium or non-bacteriostatic saline through catheter tubing to assist in moving material from tubing into trap and to add viral transport media to specimen. Transfer specimen to a sterile screw cap tube for transport to laboratory.

- **Nasopharyngeal wash**: Use rubber bulb (1-2oz for infants) or syringe to instill 3-5 ml of non-bacteriostatic saline into one nostril while occluding the other. If patient is able to cooperate, instruct them to close glottis by making a humming sound with mouth open. If a rubber bulb is used, release pressure on bulb to allow saline and mucus to enter bulb. Remove from nose and squeeze into vial of transport media. If syringe is used, apply suction to syringe to recover saline and nasal secretions. Alternately, hold sterile container, such as a urine cup, under patient's nose and ask patient to expel material into it. In either case, add recovered saline-nasal secretions to a vial of viral transport media.

- **Nasopharyngeal swab:** Use a swab with a fine, flexible metal shaft and Dacron or rayon tip. Insert swab into posterior nasopharynx. Rub swab against mucosal surface and leave in place for 5 seconds to absorb secretions. Collection of specimens from both nostrils increases amount of material available for analysis. Place both swabs in a vial of viral transport medium. Use scissors to cut the shaft so top of vial can be screwed on tightly.

- **Oropharyngeal swab:** Use only sterile Dacron or rayon swabs with plastic shafts, swab both posterior and tonsillar areas, avoiding the tongue. Place swab in a vial of viral transport medium and break shaft.

- Acceptable specimens for patients who **have a history of travel to an area where the avian influenza virus is endemic or are suspected to be infected with a novel influenza virus**:

  - While it appears that lower respiratory tract secretions may have a higher viral load than upper respiratory secretions in patients infected with these strains of avian influenza virus (e.g., H5N1) or other novel viruses, collecting these samples may present a risk to health care providers. **If appropriate personal protective equipment is not available, lower respiratory tract secretions should NOT be collected and sample collection should be restricted to nasopharyngeal and oropharyngeal swabs collected as above.** Each sample should consist of one nasopharyngeal and one oropharyngeal swab contained in one sterile vial of at least 2ml of viral transport medium.

    The hospital laboratory may perform a rapid influenza antigen detection assay using standard BSL-2 work practices in a Class II biological safety cabinet. Regardless of the result, the specimens should still be referred to the Wadsworth Center for testing.

  - Obtain a blood specimen (not anti-coagulated) from the suspect case and submit the serum, not the blood sample, along with the respiratory samples. In addition to the patient identifier, label the serum with the date and time of

collection. Serum samples will be stored until appropriate reagents become available.

- **Samples that will not be tested**
  - Samples with insufficient volume cannot be tested.
  - Samples that are leaking since they are a safety hazard to laboratory staff.
  - Samples shipped at room temperature because of the potential for false-negative results.
  - Improperly labeled samples will be tested, but the report will not be released until the required information is obtained.

- **Forms to be submitted with specimens sent to the Wadsworth Center**
  The Wadsworth Center Virus History Form must be completed. The form is available as Attachment 2-D. The completed form must be shipped with the sample. Place the completed form in a plastic bag on top of the outer shipping container but inside the cardboard box before sealing.

- **How to ship specimens to the Wadsworth Center**
  - It is essential that influenza virus specimens be sent to the Wadsworth Center as soon as possible after collection. If shipped within two days of collection, ship with cold packs to keep sample at 4ºC. Do NOT use wet ice. If shipment is delayed >2 days, then the specimens should be frozen at -70ºC and shipped on dry ice All original paperwork must be complete and accompany each specimen.

  - Packaging, shipping and transport of specimens from influenza cases must follow the current edition of the International Air Transport Association (IATA) Dangerous Goods Regulations. The following resources will be useful; (http://www.iata.org/dangerousgoods/index) and US DOT 49 CFR Parts 171-180 (http://hazmat.dot.gov/rules.htm).

  - Note that it is the shipper's responsibility – not the transport company's - to provide the appropriate packaging materials and documentation that complies with the IATA regulations. Apart from the materials provided to participants in the Sentinel Provider Network, the Wadsworth Center does NOT routinely provide shipping materials.

  - All influenza specimens must be shipped in accordance with IATA packing instructions 650 as a "Diagnostic Specimen". Appropriate UN/IATA certified shipping materials must be used. Diagnostic specimens transported under the IATA Regulations are assigned to UN Identification number 3373. Follow the step-by-step packaging guidelines given in "Packing Diagnostic Specimens for Transport: Summary Instructions" at http://www.cdc.gov/ncidod/sars/pdf/packingspecimens-sars.pdf. It should be noted that if shipment on dry ice is necessary, IATA hazardous material regulations should be followed.

- All specimens must be shipped "Priority Overnight" and received within 24 hours via chosen carrier. Confirm that the selected carrier guarantees next day, morning delivery for diagnostic specimens.

- Prior to shipment of a specimen from a patient with a travel history to a country with endemic novel influenza or suspected to be infected with a novel influenza virus, medical providers need to contact the LHD or appropriate NYSDOH Regional Epidemiologist, who will arrange testing with the Wadsworth Center if appropriate. **Do not send these specimens to the Wadsworth Center without prior notification.**

- Samples should be shipped to:
  Wadsworth Center, NYSDOH
  Griffin Laboratory
  Virus Reference and Surveillance Laboratory
  5668 State Farm Road (Route 155)
  Slingerlands, NY 12159

- **When to ship specimens to Wadsworth Center**
  At this time the Wadsworth Center laboratory will perform influenza testing only during regular working hours Monday to Friday. Specimens should therefore ONLY be shipped Sunday - Thursday so that appropriate laboratory personnel can be present to accept and process specimens. Samples should not be shipped to arrive on a public holiday. Arrangements may be made to perform after business hours testing under unusual circumstances. Please contact the NYSDOH Regional Epidemiologist and the Wadsworth Center to discuss.

- **Receipt of specimens**
  - When specimens for influenza testing are received at the Wadsworth Center, the specimen will be accessioned and entered into the clinical laboratory information management system (CLIMS).
  - Once accessioned, the record will be uploaded to the NYSDOH Electronic Clinical Laboratory Reporting System (ECLRS) by 8:00AM daily.

- **Reporting of results**
  Influenza test information will be reported through the ECLRS to the LHD and a paper report sent to submitters.
  - Results will be uploaded to ECLRS by 8.00AM each day.
  - It should be noted that several reports will be available for each sample.
    - The first report will be at the level of influenza A or B based on the real-time PCR assay.
    - The second report will be for the sub-type.
    - A third report will be issued only for isolates that are identified to the level of strain. Although all isolates will be sub-typed, not all isolates will be identified to the level of strain.
  - The final report will be marked as such.

- **Safety precautions to be taken while handling specimens in the laboratory**
  - Guidance for handling respiratory secretions from patients who are suspected of being infected with influenza virus but **who do not have a history of travel to an area where a novel influenza virus, such as the Asian HPAI H5N1 avian influenza virus, is circulating and not suspected to be infected with a novel influenza virus**:

    The following should be performed in BSL-2 facilities with standard BSL-2 practices.
    - Pathological examination and processing of formalin-fixed or otherwise inactivated tissues.
    - Molecular analysis of extracted nucleic acid preparations.
    - Electron microscopic studies with glutaraldehyde-fixed grids.
    - Routine staining and microscopic analysis of fixed smears.
    - Final packaging of specimens for transport to diagnostic laboratories for additional testing. Specimens should already be in a sealed, decontaminated primary container.

    The following activities involving untreated specimens should be performed in a BSL-2 facility AND in a Class II biological safety cabinet.
    - Aliquoting and /or diluting specimens.
    - For the appropriate strains, inoculation of cell cultures with the original diagnostic specimen or the culture amplified isolate.
    - Nucleic acid extraction procedures involving untreated specimens.
    - Based on CDC guidance, rapid EIA commercial influenza antigen detection assays.

    Laboratory workers should wear protective equipment, including disposable gloves and solid front gowns with cuffed sleeves. Work surfaces should be decontaminated upon completion of work with appropriate disinfectants and all disposable waste autoclaved.

    Any procedure or process that cannot be conducted within a biological safety cabinet requires the use of the appropriate combinations of personal protective equipment (e.g., respirators and face shields) and physical containment devices (centrifuge safety cups or sealed rotors). Centrifugation should always be carried out using aerosol-sealed centrifuge cups and rotors that are loaded and unloaded in a biological safety cabinet.

  - Guidance for handling respiratory secretions from patients **who have history of travel to an area where a novel influenza virus, such as the highly pathogenic Asian HPAI H5N1 avian influenza virus, is circulating OR are suspected to be infected with a novel influenza virus:**

- These specimens must **NOT** be inoculated into cell culture.
- If the laboratory has the capability of performing molecular detection by RT-PCR, nucleic acid to be used in the assay may be extracted in a BSL-2 facility using a Class II biological safety cabinet and appropriate personal protective equipment. It should be noted that for molecular analysis of potential influenza A/H5 (Asian lineage) strains, the CDC recommends that procedures should be performed using BSL-2 facilities and BSL-3 practices.
- After consultation with the Regional Epidemiologist, the original specimen should be forwarded to the Wadsworth Center for analysis.
- An occupational health plan should be in place such that laboratory workers are regularly monitored for symptoms of respiratory infection. Detailed information about occupational health protection from avian influenza viruses in the laboratory can be found at the following Wadsworth Center web site: http://www.wadsworth.org/events/sars/SARS_Protocol.pdf

- **Surge capacity**

  Should an increased demand for diagnostic testing arise that requires additional laboratory staff, the Laboratory Chief of the Zoonotic Diseases and Clinical Virology Laboratory will work with the Wadsworth Center senior administration to bring in appropriately trained and vaccinated personnel.

- **Contacts for additional information**

  Dr. Kirsten St. George 518-869-4520, kxs16@health.state.ny.us
  Dr. Amy Dean 518-862-4322, abd01@health.state.ny.us
  Mr. Ryan Bennett 518-869-4551, rtc03@health.state.ny.us

V. Epidemiologic Surge Capacity

During the inter-pandemic phase, epidemiologic investigation of any suspect and confirmed human novel influenza virus infections will be extensive to attempt to limit transmission. If a novel strain of influenza strain that is capable of person-to-person transmission is suspected in New York State, staff may need to be mobilized in a short time frame to conduct surveillance activities, outbreak investigations, contact tracing, and to implement control measures. As a supplement to local health department staff, NYSDOH Regional and Central Office staff, including but not limited to those in the Bureaus of Communicable Disease Control (BCDC), Sexually Transmitted Disease Control (BSTDC), Tuberculosis Control (BTBC), and AIDS Epidemiology (BHAE) may be utilized.

Many local health department epidemiologists and case investigators are nurses and may also be needed to assist with vaccination and/or antiviral therapy delivery. Given that public health medical staff may also be engaged in vaccine/antiviral initiatives, other local and state public health staff as noted above, may need to be mobilized and receive just in time training to assist with case investigations, contact tracing, and ensuring control measures are being implemented.

Once an influenza pandemic has been confirmed, public health epidemiologic resources would likely need to be diverted from intense case investigation and contact tracing to tracking the geographic distribution of illness, calculating the morbidity and mortality, and determining the overall epidemiology of the outbreak. This will be critical to target public health resources and modify prevention and control measures for local health departments and medical providers.

New York State Department of Health would identify and recruit staff for the epidemiology surge team. Persons would be assigned roles based on the experience and receive just in time training. Roles would include case investigator, supervisor of case investigators, and data collection and management, and data entry/clerical support staff. The NYSDOH epidemiologic surge capacity training and response will be coordinated by BCDC and the Regional Offices.

VI. Activities by Pandemic Period

Interpandemic and Pandemic Alert Periods

State Health Department:

- **Epidemiology:**
  - Develop materials and help educate healthcare providers about novel and pandemic influenza.
  - Provide consultation to LHDs and healthcare providers, as needed, on suspect novel influenza cases.
  - Upon request and as resources allow, Regional offices may send staff to LHDs to assist them with investigation, data entry, etc.
  - Provide updated surveillance information and materials to LHDs.
  - Work with LHDs and Wadsworth Center to coordinate testing.
  - Continue to recruit medical providers to participate in the CDC Influenza Sentinel Provider Network.
  - Maintain current influenza surveillance systems to monitor morbidity and mortality.
  - Identify critical resources for epidemiologic surge capacity.
    - Personnel needed to assist with epidemiological investigations.
    - Establish and maintain (update) contact lists, including other agencies involved in non-human animal disease control (e.g., NYSDAM, NYSDEC, USDA state offices).

- **Wadsworth Center:**
  - Routine sample testing:
    - Perform molecular influenza A detection coupled with virus isolation in cell culture.
    - Sub-typing will be performed by RT-PCR on either the original sample or the cell-culture harvest and strain identification will be based on sequence for a sub-set of samples.

- Rule-in of other respiratory pathogens by molecular methods and cell culture will be performed.
- For suspected cases of novel influenza infection, including highly pathogenic H5N1, meeting the current surveillance criteria:
  - Molecular influenza A detection will be performed.
  - Sub-typing and strain identification will be attempted on the original diagnostic sample before cell culture is attempted.
  - Virus isolation will be done provided the subtyping indicates that highly pathogenic H5N1 is not present in the sample.
- Surveillance will be based on the current sentinel physician system.
- Ensure that primers are available to sub-type all influenza A viruses.
- Ensure that sufficient quantities of all diagnostic reagents are available for the Wadsworth Center's needs.

Local Health Departments:

- Help educate healthcare providers about novel and pandemic influenza.
- Provide consultation and investigation of suspected novel influenza cases to healthcare providers in conjunction with the state health department.
- Consult on collection of specimens of suspected novel influenza testing.
- Facilitate the transfer of specimens to the Wadsworth Center.
- Conduct follow-up of suspected novel influenza cases, including contact investigations.
- Identify critical resources for epidemiologic surge capacity.
  - Personnel needed to assist with epidemiological investigations.
  - Establish and maintain (update) contact lists.
- Investigate community outbreaks of influenza-like illness.
- Assist with identifying medical providers willing to participate in the CDC Influenza Sentinel Provider Network

Healthcare Providers:

- Be aware of case definitions; procedures for screening, infection control, laboratory testing, and antiviral regimens for influenza A (H5N1) and other novel influenza viruses by accessing the NYSDOH Health Provider Network (HPN) (https://commerce.health.state.ny.us/hpn/).
- Notify local health departments (LHD) about suspected novel influenza cases and fatalities.
- Collect recommended specimens for diagnosis of novel influenza in consultation with the LHD.
- Forward specimens to the Wadsworth Center after consultation with the LHD.

Pandemic Period

State Health Department:

- **Epidemiology:**
  - Update LHDs and providers regularly throughout the influenza pandemic.
  - Work with LHDs and Wadsworth Center to coordinate testing. Upon request and as resources allow, Regional offices may send staff to LHDs to assist them with contact investigation, data entry, etc.
  - Work with LHDs to investigate and report special pandemic situations.
  - Analyze surveillance data to monitor trends in influenza activity.

- **Wadsworth Center:**
  - Molecular influenza A detection and sub-typing on original diagnostic specimen.
  - The laboratory will perform cell culture on a sub-set of samples at the appropriate biosafety level.
  - If the pandemic strain is an avian influenza virus, cell culture will not be performed.
  - The laboratory will increase surveillance activity and outbreak investigations.

Local Health Departments:

- Update providers regularly throughout the influenza pandemic.
- Provide or facilitate testing and investigation of pandemic influenza cases.
- Work with NYSDOH to investigate and report special pandemic situations.

Healthcare Providers:

- Regularly consult updates on case definitions, screening, laboratory testing, and treatment algorithms for pandemic influenza by accessing the NYSDOH Health Provider Network (HPN) (https://commerce.health.state.ny.us/hpn/).
- Report pandemic influenza cases or fatalities as requested by the LHD and NYSDOH.
- Collect recommended specimens for ongoing pandemic influenza surveillance and forward specimens as requested to NYSDOH Wadsworth Laboratory after consultation with LHD.
- Report atypical cases, breakthrough infections while on prophylaxis, or any other abnormal cases throughout the duration of the pandemic as directed by the LHD and/or NYSDOH.

Novel Influenza Surveillance and Reporting Criteria*

- **Surveillance Criteria:**
  - **Clinical Criteria:**
    - Severe illness: Hospitalized with severe ILI, including pneumonia or ARDS
    - Mild illness:
      - Fever (temperature > 38° C or 100.4° F) and
      - One or more of the following: sore throat, cough, or dyspnea
  - **Epidemiologic Criteria:**
    - Travel Risk (within 10 days of symptom onset)
      - Visited or lived in an area affected by highly pathogenic avian influenza A outbreaks in domestic poultry or where a human case of novel influenza has been confirmed.
      - Had direct contact with poultry, in an area affected by highly pathogenic avian influenza A. Direct contact with poultry is defined as touching well, sick, or dead birds, poultry feces or contaminated surfaces, or consuming uncooked poultry.
      - Had close contact (within 3 feet) with a person with confirmed or suspected novel influenza.
    - Occupational Risk (within 10 days of symptom onset)
      - Work on a farm or in a live poultry market or process or handle poultry infected with known or suspected avian influenza viruses.
      - Work in a laboratory that contains live animal, bird or novel human influenza viruses.
      - Healthcare worker in direct contact with suspected or confirmed novel influenza case.

- **During the Interpandemic and Pandemic Alert Periods and *No Evidence of HPAI or Other Novel Influenza Virus in NYS***: Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
  - Severe illness AND, within 10 days of onset, either: travel to an affected area (even if no direct contact with poultry or suspect or confirmed human cases) or occupational risk.
  - Mild illness AND, and within 10 days of onset, one of the following: direct contact with ill poultry in an affected area, close contact with a suspected or confirmed human case of novel influenza, or occupational risk.

- **During the Interpandemic and Pandemic Alert Periods and *Documented HPAI or Other Novel Influenza Virus in non-human animals <u>in NYS</u>***: Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
  - Severe or mild illness
    AND
  - Reside in or travel within 10 days of onset to a locally affected area
    AND
  - Direct contact with ill poultry or other implicated animal in an affected area OR close contact with a suspected or confirmed human case of novel influenza OR occupational risk.

- **During the Pandemic Period and *No Documented Pandemic Influenza Virus in NYS*:** Patients meeting the following clinical and epidemiologic criteria should be reported immediately to the local health department:
  - Severe or mild illness
    AND
  - Within 10 days of onset: travel to a locally affected area (even if no direct contact with poultry or suspect or confirmed human cases) OR occupational risk.

  Once an influenza pandemic has begun, it is expected that it would only be a brief period of time before the virus is identified in NYS. Therefore it is anticipated that individual case reporting of suspect cases during the pandemic will be brief.

- **During the Pandemic Period *and Documented Pandemic Influenza Virus in NYS*:** Patients meeting the mild illness clinical criteria will be classified as a suspected pandemic influenza case. However, individual case reporting will likely be suspended. The local and/or state health department will investigate any unusual cases reported by medical providers. In NYC, web-based reporting will be available for provider reporting. Outside NYC, hospital infection control practitioners are able to report individual cases of influenza through the NYSDOH Communicable Disease Electronic Surveillance System (CDESS).

Reporting Requirements:

Medical providers identifying patients meeting the above surveillance criteria should:

- Immediately report any suspect novel influenza cases to the LHD. If unable to reach the LHD, contact the NYSDOH:
  - During business hours contact the appropriate Regional Epidemiologist . If unavailable, contact the Bureau of Communicable Disease Control at (518) 473-4436.
  - Outside of business hours, contact the NYSDOH After-Hours Duty Officer at 1-866-881-2809.

- In New York City, contact the New York City Department of Health and Mental Hygiene through the Provider Access Line at 1-866-NYC-DOH1 (1-866-692-3641) during business hours. At all other times, call the Poison Control Center at 1-212-764-7667.

Ongoing updates on the pandemic influenza surveillance and reporting criteria can be found on the New York State Department of Health Website at http://www.nyhealth.gov

Information on avian influenza activity, including links to websites of the World Health Organization and the Food and Agriculture Organization of the United Nations can be accessed at http://www.cdc.gov/flu/avian/outbreaks/asia.htm.

* Criteria as of January 2006 for H5N1 avian influenza. Surveillance criteria are subject to change and will be based on the pandemic influenza strain and its epidemiology.

NYSDOH Novel Influenza Case Report Form

State case ID: _____ **Appendix 2-B**

Patient Demographics

1. Patient Name……..…. _____

2. Date of birth ……. _____/ _____/ _____ (mm/dd/yyyy)

3. Gender……. Male Female

4. Race……... White Black Asian Hawaiian/ Pacific Islander American Indian/ Alaska Native

5. Ethnicity……... Hispanic or Latino Not Hispanic or Latino

6. Address…… Street _____ Apt. _____
City: _____ County: _____
State: _____ Zip Code: _____ Country: _____

7. Telephone Number……. (_____) _____

Illness Course

1. Date of illness onset…… _____/ _____/ _____

2. Date of fever onset…… _____/ _____/ _____
(Temperature ≥ 100.4º C or ≥ 38.0º C; or feverishness if not measured)

Symptoms and Signs

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

Feverishness	Fever (≥100.4 ºF **or** ≥ 38.0ºC)	Runny nose/congestion	Conjunctivitis
Headache	Cough	Sore throat	Bloody respiratory secretions
Difficulty breathing	Shortness of breath	Lethargy	Seizure(s)
Muscle aches	Vomiting	Diarrhea	Abdominal pain

Other (specify): _____

Clinical Diagnoses and Complications (check all that apply)

What complications, if any, did the patient have during the illness? **(check all that apply)**

Pneumonia	ARDS	Rhabdomyolysis	DIC
Bronchiolitis	Myocarditis	Seizures	Hypotension
Croup	Renal failure	Encephalopathy/encephalitis	Inotropic drugs for blood pressure
Shock	Myositis	Reye syndrome	Dehydration requiring IV fluids

Fever (highest temperature = _____ º C; or _____º F) Hypothermia (lowest temperature = _____ º C; or _____º F)

Exacerbation of underlying medical condition(s) (specify): _____

Other complications (specify): _____

Medical Care and Treatment

1a. Was the patient evaluated by a health care provider or admitted for medical care? ….. Yes No Unknown

1b. **If YES**, indicate level(s) of care received (check all that apply): Outpatient clinic ER Inpatient ward Intensive care unit

1c. Was a chest x-ray or chest CAT scan performed? Yes No Unknown

1d. **If YES**, specify medical facilities where patient was evaluated and/or admitted: *(if > 2 facilities, add information at end of form)*

Facility 1: _____ Date of admission: _____/ _____/ _____
City: _____ State: _____ Date of discharge: _____/ _____/ _____
Facility 2: _____ Date of admission: _____/ _____/ _____
City: _____ State: _____ Date of discharge: _____/ _____/ _____

1e. Did the patient require mechanical ventilation (intubated)? ….. Yes No Unknown

NYSDOH Novel Influenza Case Report Form

State case ID: _____ **Appendix 2-B**

Death Information

1. Date of death…….. _____/ _____/ _____ 2. Was an autopsy performed? … Yes No Unknown

3. Location of death ... Home Emergency Dept (ER) Inpatient ward ICU Other (specify):_____

Influenza Testing

Influenza Test Type	Result	Influenza Type	Specimen(s) that tested positive	Specimen collection Date (s)
Commercial rapid diagnostic test Name of test: _____	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue BAL Other: _____	____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____
Viral Culture	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue BAL Other: _____	____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____
Direct fluorescent antibody (DFA)	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue BAL Other: _____	____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____
Indirect fluorescent antibody (IFA)	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue BAL Other: _____	____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____

State case ID: _____ **Appendix 2-B**

Enzyme immunoassay (EIA)	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____ ___	Blood CSF NP swab NP aspirate OP swab Tissue BAL Other: _____	____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____
RT-PCR	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue BAL Other: _____	____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____
Immunohistochemistry (IHC)	At least one positive All negative Pending	Influenza A Influenza B Influenza A/B Unknown Subtype/strain: _____	Blood CSF NP swab NP aspirate OP swab Tissue BAL Other: _____	____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____ ____/ ____/ _____

1. Date of the first positive influenza test:…… _____/ _____/ _____

2. Were specimens sent to NYSDOH Wadsworth Center?..... Yes No Unknown

3. If YES, who submitted the specimens? _____
_____
_____

4. If an influenza virus was isolated from this patient, was the isolate sent to CDC?..... Yes No Unknown

Culture Confirmation of Secondary Bacterial Pathogens

1. Was there culture confirmation of a bacterial infection?.....… Yes No Unknown

2. **If YES**, please specify the organism(s) and specimen(s):

Organism	**Specimen(s) that tested positive** (e.g., blood, CSF, sputum, tissue, pleural fluid, upper resp. tract, lower resp. tract)
Streptococcus pneumoniae	_____
Group A streptococcus	_____
Neisseria meningitidis	_____
Haemophilus influenzae type b	_____
Haemophilus influenzae non-type b	_____
Staphylococcus aureus, methicillin sensitive	_____

State case ID: _____ **Appendix 2-B**

Staphylococcus aureus, methicillin resistant	_____
Staphylococcus aureus, sensitivity not done	_____
Other (specify)_____	_____

3. Is a bacterial isolate available for further testing by CDC?..... ….. Yes No Unknown

Non-Influenza and Non-bacterial infections (viruses and fungal infections)

1. Was there laboratory testing evidence for a **viral** infection (***not influenza***) or **fungal** infection? Yes No Unknown

2. **If YES**, please specify what virus or fungal infection and specimen source: _____

Epidemiologic Risk Factors

TRAVEL EXPOSURES:

1a. In the 10 days prior to illness onset, did the patient travel to a foreign or domestic area with documented or suspected recent/previous novel influenza activity? Yes No Unknown

If YES,
Country: _____

Arrival Date: _____/ _____ / _____ Departure Date: _____/ _____ / _____

1b. Did the patient come within 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

1c. Did the patient touch any recently butchered poultry? Yes No Unknown

1d. Did the patient visit or stay in the same household with anyone with pneumonia or severe flu-like illness? Yes No Unknown

1e. Did the patient visit or stay in the same household with a suspected human novel influenza case? Yes No Unknown

1f. Did the patient visit or stay in the same household with a known human novel influenza case? Yes No Unknown

NON-TRAVEL EXPOSURE:

For patients whom did not travel to an affected area, in the 10 days prior to onset, did the patient have contact with a suspect or confirmed human novel influenza case? Yes No Unknown

If yes, Did the patient visit or stay in the same household as the case? Yes No Unknown

Influenza Vaccine and Antiviral History

1. Did the patient receive any influenza vaccine during the current season ***(before illness)***? Yes No Unknown

2. **If YES**, please specify influenza vaccine received before illness onset: Trivalent inactivated influenza vaccine (TIV) *[injected]*
Live-attenuated influenza vaccine (LAIV) *[nasal spray]*

3. **If YES**, how many doses did the patient receive during the current season ***(before illness)*****?** 1 dose 2 doses

4. **If YES**, specify influenza vaccination dates:

Dose 1: _____/ _____/ _____ < 14 days prior to illness ≥ 14 days prior to illness

Dose 2: _____/ _____/ _____ < 14 days prior to illness ≥ 14 days prior to illness

5. Did the patient ever receive influenza vaccine in a previous season?..... Yes No Unknown

State case ID: _____ **Appendix 2-B**

6. Did the patient receive antiviral medication? Yes No Unknown

If YES,
Antiviral Name: _____ Dosage: _____ Route: _____
Date started: _____/ _____/ _____ Date ended: _____/ _____/ _____

Existing Medical Conditions and Medication History

1. Did the patient have any underlying medical conditions? Yes No Unknown

2. **IF YES, please check all that apply:**

Asthma/reactive airway disease
Cardiac disease (specify) _____
Cystic fibrosis
Developmental delay (moderate to severe)
Diabetes mellitus (Insulin dependent)
Hemoglobinopathy (e.g. sickle cell disease, not trait)
Metabolic disorder (specify) _____
Other (specify) _____

Other chronic lung disease (specify) _____
Immunosuppressive condition (specify) _____
Pregnant (specify gestational age in weeks) _____
History of febrile seizures before current illness
Seizure disorder requiring anti-seizure medications
Renal disease (specify): _____
Neuromuscular disorder (including cerebral palsy) (specify)
_____

3. Was the patient receiving any of the following medications when influenza illness started? **(check all that apply):**

Aspirin or aspirin-containing products
Systemic steroids (not inhaled)
Radiation therapy
Chemotherapy for cancer
Other immunosuppressive medications (specify): _____

Isolation

Location 1:
Isolation Location: Home Hospital School Campus Unknown Other (specify): _____
Isolation Start Date: *(mm/dd/yyyy)* _____/ _____/ _____ Isolation Discontinuation Date *(mm/dd/yyy)* _____/ _____/ _____

Location 2:
Isolation Location: Home Hospital School Campus Unknown Other (specify): _____
Isolation Start Date: *(mm/dd/yyyy)* _____/ _____/ _____ Isolation Discontinuation Date *(mm/dd/yyy)* _____/ _____/ _____

Contact and Travel During Infectious Period

1. Did the patient travel while ill? Yes No Unknown
2. Was the patient symptomatic during travel? Yes No Unknown
3. List all travel either by public conveyance (airplane, train, bus) or with a tour group, 24 hours before onset of fever or symptoms thereafter. *(List each portion of leg of the trip as a separate record)*:

Trip 1:
Depart Date: _____/ _____ / _____ Arrival Date: _____/ _____ / _____
Departure City: _____ Arrival City: _____
Transport Type: Airline Auto Bus Cruise Other Subway Tour Group Train

Trip 2:
Depart Date: _____/ _____ / _____ Arrival Date: _____/ _____ / _____
Departure City: _____ Arrival City: _____
Transport Type: Airline Auto Bus Cruise Other Subway Tour Group Train

NYSDOH Novel Influenza Case Report Form

State case ID: _____ **Appendix 2-B**

Submitter Contact Information

LHD:	_____	Last name:	_____
Title:	_____	Institution:	_____
City:	_____	State:	_____
Phone:	_____	Fax:	_____
E-mail:	_____	Report Date:	_____/ _____ / _____

Diagnostic Laboratory Testing for Pandemic Influenza

- Collect one specimen set for submission to the Wadsworth Center for molecular testing. The specimen set should consist of one nasopharyngeal swab, aspirate or wash and one oropharyngeal (throat) swab. **Use only Dacron or rayon swabs with a plastic shaft for oropharyngeal swab, and fine-tip flexible metal shaft swab for nasopharyngeal swab. Do not use calcium alginate or wooden-shafted swabs**. **Place both swabs in the same sterile vial containing 2ml of viral transport medium. Keep samples cold (4ºC) after collection.**

  Collection Guidelines:

  - **Nasopharyngeal swab:** Use a swab with a fine, flexible metal shaft and Dacron or rayon tip. Insert swab into posterior nasopharynx. Rub swab against mucosal surface and leave in place for 5 seconds to absorb secretions. Collection of specimens from both nostrils increases amount of material available for analysis. Place both swabs in a vial of viral transport medium. Use scissors to cut the shaft so top of vial can be screwed on tightly.

  - **Nasopharyngeal aspirate**: Requires source of suction (syringe, vacuum pump, or wall suction), specimen trap with two outlets, and catheter (no. 6 to 14 depending on size of patient). Without applying suction, insert catheter through nose into posterior nasopharynx (approximately the distance from tip of the nose to the external opening of the ear when measured in a straight line). Apply gentle suction, leaving catheter in place for a few seconds, then withdraw slowly. Suction contents of a vial of viral transport medium or non-bacteriostatic saline through catheter tubing to assist in moving material from tubing into trap and to add viral transport media to specimen. Transfer specimen to a screw cap tube for transport to laboratory.

  - **Nasopharyngeal wash**: Use rubber bulb (1-2oz for infants) or syringe to instill 3-5 ml of non-bacteriostatic saline into one nostril while occluding the other. If patient is able to co-operate, instruct them to close glottis by making a humming sound with mouth open. If a rubber bulb is used, release pressure on bulb to allow saline and mucus to enter bulb. Remove from nose and squeeze into vial of transport media. If syringe is used, apply suction to syringe to recover saline and nasal secretions. Alternately, hold sterile container such as urine cup under patient's nose and ask patient to expel material into it. In either case, add recovered saline-nasal secretions to a vial of viral transport media.

  - **Oropharyngeal swab:** Use only sterile Dacron or rayon swabs with plastic shafts, swab both posterior and tonsillar areas, avoiding the tongue. Place swab in a vial of viral transport medium and break shaft.

  - While it appears that lower respiratory tract secretions may have a higher viral load than upper respiratory secretions in patients infected with the avian influenza virus (H5N1) or other novel viruses, collecting these samples may present a risk

to health care providers. **If appropriate personal protective equipment is not available, lower respiratory tract secretions should NOT be collected and sample collection should be restricted to nasopharyngeal and oropharyngeal specimens collected as above.** Each sample should consist of one nasopharyngeal swab, wash or aspirate and one oropharyngeal swab contained in one sterile vial of at least 2ml of viral transport medium.

- Obtain a blood specimen (not anti-coagulated) from the suspect case and submit the serum, not the blood sample, along with the respiratory samples. In addition to the patient identifier, label the serum with the date and time of collection. Serum samples will be stored until appropriate reagents become available.

- A rapid influenza antigen detection test may be performed on the nasopharyngeal/oropharyngeal sample using standard BSL2 work practices in a Class II biological safety cabinet. Regardless of the result, specimens should still be referred to the Wadsworth Center for further testing.

- Submit a completed Virus Reference and Surveillance Laboratory patient history form (Appendix 2-D) with the specimens. The form is also available on the HPN and HIN at: https://commerce.health.state.ny.us/hpn/hanweb/flu/virussurvrefhistoryform.pdf

- Obtain a clotted blood specimen from the suspect case, separate serum by centrifugation, and submit the serum, not the blood sample, along with the respiratory samples. In addition to the patient identifier, label the serum tube with the date and time of collection. Serum samples will be stored for serologic testing when appropriate reagents become available.

- Viral culture should not be performed on respiratory specimens from patients who meet the surveillance criteria as described in the advisory update. Highly pathogenic avian influenza A (H5N1) must only be cultured under Biosafety Level (BSL) 3+ laboratory conditions. This includes controlled access, double door entry with change room and shower, use of respirators, decontamination of all wastes, and showering out of all personnel. Laboratories working on these viruses must be certified by the U.S. Department of Agriculture.

- It is essential that specimens be sent to the Viral Reference and Surveillance Laboratory at the Wadsworth Center as soon as possible after collection. If shipped within two days of collection, store at 4ºC post-collection and ship with cold packs to maintain temperature at 4ºC. Do not use wet ice. If shipment is delayed >2days, then the specimens should be stored frozen at -70ºC and shipped on dry ice.

- Contact the Wadsworth Center laboratory prior to shipping samples for testing for influenza A (H5N1).

  Dr. Kirsten St. George 518-869-4520, kxs16@health.state.ny.us
  Dr. Amy Dean 518-862-4322, abd01@health.state.ny.us
  Mr. Ryan Bennett 518-869-4551, rtc03@health.state.ny.us

- It is the shipper's responsibility to ensure that appropriate shipping materials are used. Please contact your carrier for shipping and packaging information. Patient specimens must be shipped as "Diagnostic Specimens." All specimens must be shipped "Priority Overnight" and received within 24 hours via chosen carrier. Specimens should ONLY be shipped Sunday - Thursday so that appropriate laboratory personnel can be present to accept and accession specimens Monday - Friday.

  Address for courier shipping:
  Wadsworth Center, NYSDOH
  Griffin Laboratory
  Virus Reference and Surveillance Laboratory
  5668 State Farm Road (Rt. 155)
  Slingerlands, NY 12159

Virus Detection History

New York State Department of Health
Wadsworth Center, Empire State Plaza
Virus Reference and Surveillance Laboratory
P.O. Box 509
Albany, New York 12201-0509
Phone (518) 869-4500 Fax (518) 869-6487

* Please see instructions for shipping address

NYS Lab Number

Appendix 2-D

Date Received

Please type or print legibly in black ink

Patient

Last Name	First Name	MI	DOB _____/_____/____ MM DD YY	Sex ☐ Male ☐ Female

Street Address	City/State	Zip Code	County of Residence

Specimen

☐ Original Material ☐ Isolate Cell line_____ ☐ Autopsy ☐ Biopsy

NYS DOH Outbreak # _____ CDESS Case ID _____ Submitter Lab # _____

DOH Influenza Sentinel Specimen ☐ Yes ☐ No SARS suspect ☐ Yes ☐ No ☐ Calicivirus testing

Source	Date Collected	Onset Date
☐ Stool ☐ NPS ☐ Genital ☐ Urine ☐ CSF ☐ Blood ☐ Vesicle ☐ Other _____	_____/_____/_____ MM DD YY	_____/_____/_____ MM DD YY

Requesting Medical Provider Name and Address **Laboratory PFI** _____

Contact person_____**Email**_____

Telephone_____**Fax**_____

Comments

_____

_____

_____

_____

_____

_____

Diagnosis _____ **Virus Suspected** _____

Diagnosis/Signs/Symptoms (Please check)

☐ Fever
Max. temp. _____
Duration _____

Rash
☐ Maculopapular
☐ Hemorrhagic
☐ Vesicular
☐ Other _____

Respiratory
☐ Cough
☐ Upper Resp./Rhinitis pharyngitis
☐ Pneumonia, type _____
☐ X-ray _____
☐ Bronchitis
☐ Pleurisy
☐ Other _____

Cardiovascular
☐ Myocarditis
☐ Pericarditis
☐ Endocarditis

Gastrointestinal
☐ Diarrhea
☐ Nausea/Vomiting
☐ Other _____

Central Nervous System
☐ Headache
☐ Stiff neck
☐ Abnormal CSF
☐ Microcephalus
☐ Seizures
☐ Paralysis
☐ Other _____

Miscellaneous
☐ Immunodeficient
☐ Immunosuppressed
☐ Lymphadenopathy
☐ Splenomegaly
☐ Hepatomegaly
☐ Jaundice
☐ Mucous Membrane Lesion
☐ Skin Lesion
☐ Conjunctivitis
☐ Myalgia
☐ Pleurodynia
☐ Chorioretinitis
☐ Other _____

Exposure/Travel History
☐ Contact with a known case
☐ Exposure to animal specify _____
☐ Insect bite specify _____
☐ Health care worker
☐ Travel _____

☐ Pregnant Trimester _____
☐ Recent Viral Vaccinations or Infections specify _____
date _____
☐ Abnormal laboratory results specify _____
date _____

☐ Antiviral therapy specify_____
Start date _____

Section 3: Healthcare Planning

I. Overview

II. Objectives

III. Hospital Planning during the Interpandemic and Pandemic Alert Periods

A. Communication
B. Education and Training
C. Occupational Health
D. Use and Administration of Vaccines and Antiviral Drugs
E. Facility Access and Security
F. Hospital Triage and Clinical Evaluation
G. Hospital Surge Capacity
H. Mortuary Issues
I. HERDS (Health Emergency Response Data System)

IV. Non-Hospital Healthcare Planning during the Interpandemic and Pandemic Alert Periods

A. Nursing Homes
B. Adult Care Facilities
C. Home Health Agencies
D. Primary Care (Community Healthcare Centers, Urgent Care Centers, Physician Offices)
E. Emergency Medical Services (EMS)
F. Non-Traditional Triage and Alternative Care Centers

V. General Considerations

A. Infection Control
B. Volunteers
C. Mass Fatality
D. Altered Standards of Care

VI. Activities by Pandemic Period

A. Occupational Health
B. Hospital Triage and Clinical Evaluation
C. Hospital Surge Capacity
D. HERDS
E. Nursing Homes
F. Adult Care Facilities
G. Home Health Agencies
H. Primary Care Providers (Community Healthcare Centers, Urgent Care Centers, Physician Offices)
I. EMS

J. Mass Fatality
K. Volunteers
L. Overarching Activities of the New York State Department of Health

Appendix:

3-A: Home Health Agency Patient Classification Levels

I. Overview

Emergency response, including maintenance of critical services and surge capacity in the health care system, has been an integral part of both CDC and HRSA cooperative agreements for terrorism preparedness. Over the last five years, New York State hospitals have been developing Comprehensive Emergency Management Plans. These plans have significantly elevated their ability to respond to all hazards, including bio-events such as a smallpox and pandemic influenza outbreak.

Pandemic influenza differs from many biological threats in its potential magnitude and duration, including the likelihood of second and later waves of disease. Several features set pandemic influenza apart from other public health emergencies or community disasters:

- Influenza may be an acute but self-limited and uncomplicated infection that does not require medical evaluation or therapy.
- Outbreaks can be expected to occur simultaneously throughout much of the U.S., making it more difficult for healthcare providers to share human and material resources that usually occur in the response to other disasters. Localities should be prepared to rely on their own resources to respond as much as possible. The effect of pandemic influenza on individual communities will be relatively prolonged (weeks to months) in comparison to disasters of shorter duration.
- Because of widespread susceptibility to a pandemic influenza strain, the number of persons affected will be high.
- Health care workers and other first responders will be at higher risk of exposure and illness than the general population, further straining the health care system.
- Effective preventive and therapeutic measures, including vaccine and antiviral agents, are likely to be delayed and in short supply.
- Widespread illness in the community could result in sudden and potentially significant shortages of personnel in other sectors that provide critical public safety services.

A pandemic will overwhelm the current healthcare system. The increase in patients requiring hospitalization and critical care will result in shortages of multiple resources including personnel and equipment. This will in turn create a situation where nursing homes and homecare agencies will be required to accept more clinically complex hospital discharges and will have to care for patients they would normally discharge to the hospital. New York State Department of Health (NYSDOH) will need to authorize hospitals, adult care facilities and nursing homes to expand their capacity by utilizing common areas that would not normally be approved for use. Community Health Centers and other primary care providers will need to expand their triage and outpatient treatment capacity to relieve pressure from hospital emergency departments. All facilities will need to supplement their highly trained professional staff with volunteers and lesser trained staff.

Standards of care and the current regulatory approach will, by necessity, need to be changed. NYSDOH will convene in early 2006 a panel to review the potential impact of

a pandemic on standards of care including what changes may be necessary based on what components of the system are unable to meet demands. The Healthcare Planning and Emergency Response section describes the systems that will be used to expand capacity to diagnose, treat and manage patients requiring medical care during pandemic influenza. Surge capacity and management of mass fatalities must be addressed as part of the changes in standards of care.

During the Interpandemic and Pandemic Alert Periods, emphasis will be centered upon developing institutional plans, protocols and drills for responding to influenza pandemic. Health care facilities included in the planning will be hospitals, primary care centers, emergency medical services, home health agencies and long term care facilities.

This section will address various issues related to healthcare planning and emergency response including triage, surge capacity, infection control in healthcare facilities, volunteers, EMS and mass fatalities. The needs and activities will be articulated for all health care facilities including hospitals, long term care facilities, and home health agencies.

II. Objectives

Objectives of this section include:

- Guide and assist hospitals in planning for a worldwide pandemic including the development of increased capacity for triage of all patients.
  - Hospital surge capacity
    - hospital beds
    - ventilators and other medical equipment and supplies
    - staffing
  - Non-traditional healthcare facilities
- Identify the role and activities of long term care facilities during an influenza pandemic.
- Identify the roles of home health agencies during an influenza pandemic.
- Identify the roles of Emergency Medical Services during an influenza pandemic.
- Emphasize the importance of infection control protocols.
- Provide for the maintenance of mental health services for health care employees.
- Recruit volunteers for increased staffing capacity during pandemic influenza.
- Coordinate with local health departments (LHDs) outside NYC and the New York City Department of Health and Mental Hygiene (NYC DOHMH) and other emergency planners in NYC regarding hospital and EMS planning.
- Assure the adequacy of care and disposition of the dead during mass fatality including dispositions that are outside of the current/standard means of disposal.
- Identify necessary changes in local and regional healthcare, as necessary, under the extraordinary conditions of a pandemic.
- Educate all healthcare providers on potential changes in the healthcare system (protocols, procedures and standards) in a world pandemic.

III. Hospital Planning during the Interpandemic and Pandemic Alert Periods

Each hospital must develop a plan for response to an influenza pandemic. This plan should be developed by an interdisciplinary team and should be an outgrowth of the facility's biological response component of its Comprehensive Emergency Management Plan. It should draw heavily from the facility's plan to address smallpox and other communicable diseases.

A. Communications

A well-conceived internal and external communication plan is extremely important during a pandemic. The infrastructure for communication should follow the Incident Command System.

External Communications

To ensure effective external communication, hospitals must:

- Identify key points of contact in their LHD, the NYSDOH Regional Office, the local Office of Emergency Management (OEM), the local media, public officials, other healthcare facilities and community partners to facilitate information sharing during a pandemic. Redundant means of communication (e.g., telephone, FAX, radio, electronic mail, cell phone) should be established with these partners.
- Ensure that key staff has active Health Provider Network accounts and an appropriate number of staff on all shifts are assigned to HERDS roles.
- Understand what information will be collected via HERDS and establish mechanisms to collect it.
- Ensure that information in the Communications Directory is complete and kept current.
- Assign a Public Information Officer (PIO), clinical spokesperson and a person responsible for updating the LHD and NYSDOH regarding public health reporting.
- Work with LHDs and the NYSDOH regarding expectations/protocols for communication with media and public.
- Understand expectations for communications with NYSDOH and local incident command structure.

Internal Communications

- Develop and drill a staff call-down (phone tree) list.
- Develop and drill an internal ICS to ensure effective communication to all levels of staff.
- Develop procedures to keep patients and visitors informed of the status/impact of the pandemic.

B. Education and Training

Each hospital should develop an education and training plan that addresses the needs of staff, patients, family members, and visitors. Hospitals should assign responsibility for coordination of the pandemic influenza education and training program and identify training materials—in different languages and at different reading levels, as needed—from HHS agencies, state and local health departments, and professional associations. Hospital regulations require information to be available in languages spoken by greater than 1% of the local population.

Staff Education

- Identify educational resources for clinicians, including federally sponsored teleconferences, state and local health department programs, web-based training materials, and locally prepared presentations.
- Provide education to relevant nursing (e.g., Med-Surg, ICU, Dialysis, etc.) and medical staff (e.g., Dept. of Medicine, Pediatrics, Family Practitioners, etc.) on pandemic influenza (2 hours/year). All staff must be reminded of the importance of hand hygiene and infection control practices.
- General topics for staff education should include:
    - Prevention and control of influenza.
    - Implications of pandemic influenza.
    - Benefits of annual influenza vaccination.
    - Role of antiviral drugs in preventing disease and reducing rates of severe influenza and its complications.
    - Infection control strategies for the control of influenza, including respiratory hygiene/cough etiquette, hand hygiene, standard precautions, droplet precautions, and, as appropriate, airborne and/or contact precautions (see Section 4: Infection Control).

- Hospital-specific topics for staff education should include:
    - Policies and procedures for the care of pandemic influenza patients, including how and where pandemic influenza patients will be cohorted.
    - Pandemic staffing contingency plans, including how the facility will deal with illness in personnel.
    - Policies for restricting visitors and mechanisms for enforcing these policies.
    - Reporting to the health department suspected cases of infection caused by novel influenza strains during the Interpandemic and Pandemic Alert Periods.
    - Measures to protect family and other close contacts from secondary occupational exposure.
- Establish a schedule for training/education of clinical staff and a mechanism for documenting participation. Consider using annual infection control updates/meetings, medical Grand Rounds, and other educational venues as opportunities for training on pandemic influenza.

- Cross-train clinical personnel, including outpatient healthcare providers, who can provide support for essential patient-care areas (e.g., emergency department, ICU, medical units).
- Train intake and triage staff to detect patients with influenza symptoms and to implement immediate containment measures to prevent transmission (see also Section 5: Clinical Guidelines).
- Supply social workers, psychologists, psychiatrists, and nurses with guidance for providing psychological support to patients and hospital personnel during an influenza pandemic. If feasible, hospitals should also provide psychological-support training to appropriate individuals who are not mental health professionals (e.g., primary-care clinicians, leaders of community and faith-based organizations). Hospitals should send representatives to behavioral health training sponsored by NYSDOH.
- Identify workload/tasks that could be taken over by volunteers to ease workload on clinicians. (e.g., phones, transportation).
- Develop a strategy for "just-in-time" training of non-clinical staff who might be asked to assist clinical personnel (e.g., help with triage, distribute food trays, transport patients), students, retired health professionals, and volunteers who might be asked to provide basic nursing care (e.g., bathing, monitoring of vital signs); and other potential in-hospital caregivers (e.g., family members of patients).

Education of patients, family members, and visitors

Patients and others should know what they can do to prevent disease transmission in the hospital, as well as at home and in community settings.

- Identify language-specific and reading-level appropriate materials for educating patients, family members and hospital visitors during an influenza pandemic. (See HHS document on pandemic flu for families.) Hospital regulations require information to be available in languages spoken by greater than 1% of the local population.
- Develop a plan for distributing information to all persons who enter the hospital regarding the disease, its transmission and proper infection control measures. Identify staff to answer questions about procedures for preventing influenza transmission.

C. Occupational Health

Maintaining an adequate level of competent healthcare staff will be a major challenge during a pandemic. The healthcare workforce will be stressed physically and psychologically. Like others in the community, many healthcare workers will become ill. Healthcare facilities must be prepared to: 1) protect healthy workers from exposures in the healthcare setting through the use of recommended infection control measures; 2) evaluate and manage symptomatic and ill healthcare personnel; 3) distribute and administer antiviral drugs and/or vaccines to healthcare personnel, as recommended by HHS and NYSDOH; and 4) provide psychosocial services to health care workers and their families to help sustain the workforce.

To achieve these ends, healthcare facilities must establish systems to effectively screen workers for respiratory symptoms; reinforce proper use of PPE (section 4: Infection Control), hand hygiene and other infection control measures; review time-off policies and have a plan for reassignment of high-risk personnel (e.g., pregnant women, immuno-compromised staff) to low risk duties; promote annual influenza vaccination; and develop a plan to rapidly administer vaccine and antivirals should they become available.

The provision of mental health/psycho-social support to workers is especially important during a pandemic. Healthcare workers will be under constant stress due to their increased risk of contracting influenza, the likely inordinate increase in the number of patient deaths, and the possible alteration of standards of patient care necessitated by the pandemic. In addition, staff may experience the stress of ill persons at home or recent death of a family member and/ or friend. The necessity of working while wearing PPE and the possibility of quarantine also can take a toll.

Healthcare facilities must ensure that plans are made to meet workers' physical needs at work (e.g., food and housing, rest and recuperation including breaks from PPE and patient care) and provide emotional support and counseling.

Hospitals should have a system in place for documenting influenza vaccination of healthcare personnel.

D. Use and Administration of Vaccines and Antiviral Drugs

Pandemic influenza vaccine and "pre-pandemic" influenza vaccine

Once the characteristics of a new pandemic influenza virus are identified, the development of a pandemic vaccine will begin. Recognizing that there may be benefits to immunization with a vaccine prepared before the pandemic against an influenza virus of the same subtype, efforts are underway to stockpile vaccines for subtypes with pandemic potential. As supplies of these vaccines become available, it is possible that some healthcare personnel and other persons critical to a pandemic response will be recommended for vaccination to provide partial protection or immunological priming for a pandemic strain. Hospitals should review the Hospital Point of Dispensing (HPOD) Annex to their Comprehensive Emergency Management Plan. The plan includes the method of distribution of vaccine and antivirals to staff and families.

Interim recommendations on priority groups for vaccination and strategies for vaccine distribution are discussed in HHS Pandemic Influenza Plan Supplement 6. During a pandemic, these recommendations will be updated, taking into account populations which are most at risk. In the interim, healthcare facilities should:

- Monitor updated HHS (and NYSDOH) information and recommendations on the development, distribution, and use of a pandemic influenza vaccine (http://www.pandemicflu.gov)
- Work with local and state health departments on plans for distributing pandemic influenza vaccine.

- Provide estimates of the quantities of vaccine needed for hospital staff and patients, as requested by the state health department.
- Develop a stratification scheme for prioritizing vaccination of healthcare personnel and families who are most critical for patient care and essential personnel to maintain the day-to-day operation of the healthcare facility.

Antiviral medications may be effective for a particular virus in a pandemic. Hospitals and practitioners should keep abreast of recommendations from CDC and NYSDOH on use for treatment vs. prophylaxis (see Section 7: Antiviral Medication Procurement, Distribution, and Use).

E. Facility Access and Security

Hospitals should determine in advance what criteria and procedures they will use to limit non-patient access to the facility if pandemic influenza spreads through the community. Any variation from normal hospital access should be communicated to patients, staff and visitors.

The hospital should develop criteria or thresholds for temporary closure of the hospital to new admissions and transfers. The criteria should consider staffing ratios, isolation capacity, and risks to non-influenza patients. As part of this effort, hospital administrators should determine who in the hospital will make the request for temporary closings. All such requests must be forwarded to the NYSDOH Regional Office that has jurisdiction over the hospital.

The hospital's Security Annex to their Comprehensive Emergency Management Plan should include the following:

- Assessment of building for security/access risks.
- A defined method of identification of staff and visitors.
- A plan for enforcement of hospital access by hospital security services. Local law enforcement should be informed of the plan, however; they might be overburdened during a pandemic and therefore will have limited ability to assist healthcare facilities with security services.
- Healthcare facilities should plan for additional security. This may be required given the increased demand for services, the possibility of long wait times for care and because triage or treatment decisions may not be in agreement with patient or family expectations.

F. Hospital Triage and Clinical Evaluation

During a pandemic, hospital emergency departments and outpatient departments may be overwhelmed with patients seeking care. Therefore, hospitals must review current procedures for clinical evaluation and admission in order to make them as efficient as possible, thereby reducing the number of patient encounters. They must develop efficient systems to: 1) identify patients with pandemic influenza versus the worried well; 2) physically separate suspect influenza patients from other patients during waiting and

triage to reduce risk of disease transmission; and 3) determine whether hospitalization is required. Hospitals should plan to assign a triage coordinator to manage patient flow. The adherence to proper infection control standards must also be reinforced.

Hospitals should also develop plans to enhance their capacity to triage by working with their LHD and local OEM to identify volunteer resources and to establish additional triage sites. These can be on-campus (e.g., additional outpatient clinics, temporary shelters) or off-campus at extension clinic sites.

The success of a hospital's efforts to divert triage away from its ED to other sites will be dependant upon the effective use of public service announcements that explain the rationale to the community.

G. Hospital Surge Capacity

Hospitals have been required to develop a Bed Surge Annex to their Comprehensive Emergency Plan. The Bed Surge Annex should be reviewed and updated at least annually to ensure that it reflects all appropriate strategies to successfully expand their existing bed capacity.

1. Surge capacity

- Pandemic influenza will create demands for healthcare resources that greatly exceed normal capacity. Healthcare facilities must plan ahead to address emergency staffing needs and increased demand for isolation, ICUs, assisted ventilation services and consumable and durable medical supplies.
- Hospital planners can use FluSurge software (http://www.cdc.gov/flu/flusurge.htm) to estimate the potential impact of a pandemic on resources such as staffed beds (both overall and ICU) and ventilators and then develop strategies to allocate these resources.
- In the event of a massive pandemic where there are not enough human or material assets (e.g., nursing, ventilators, nutrition, hydration) available to meet patient needs, decisions to alter the standard of care will need to be made in an effort to provide the best possible outcome to the greatest number of patients. The NYSDOH is convening a panel of experts to discuss and provide guidance on altered standards of care.
- Recommendations to the OEM pertaining to re-allocation of resources will be made on the basis of information derived from HERDS. Accurate completion of HERDS surveys by hospitals is critical to this effort.

2. Staffing

A major concern during an influenza pandemic is will be the shortage of nurses and other healthcare personnel. This lack of healthcare personnel will limit the ability of a hospital to handle increased surge capacity.

The facility should develop an educational package directed toward staff and families that focuses on the nature of the disease, its mode of transmission and proper

infection control methods. Education of the family may serve to reduce incidence of illness and/or absenteeism.

Identification of sources of back-up personnel is of paramount importance given the likelihood of increased demands on the system posed by the pandemic, coupled with concurrent reduction in the work force due to illness, absenteeism, and exhaustion. Healthcare facilities should take the following steps to attempt to address projected staffing shortages:

- Assign responsibility for the assessment and coordination of staffing during an emergency and ensure call-down lists (phone tree) are updated and procedures are current.
- Estimate the minimum number and categories of personnel needed to care for a cohort of influenza patients per day/shift and use to project staffing needs;
- Develop strategies to enhance staffing to required levels including:
    - reassign non-clinical staff to clinical and clinical support functions;
    - cross-train staff;
    - work with LHD, local OEM and other health facilities and community partners to recruit volunteers;
    - utilize healthcare students (e.g., medical and nursing students) and family members of patients where feasible; and
    - develop Mutual Aid Agreements or Memoranda of Understanding/Agreement with other healthcare facilities.
- Understand the credentialing requirements and insurance and liability concerns related to using non-facility staff.
- Hospitals should work with their local OEM and LHDs on recruitment, training and credentialing of volunteers to support surge staffing (see part V.B: Other Considerations, Volunteers).

3. Bed capacity

The following actions should also be taken:

- Review and revise admissions and discharge criteria for times when bed capacity is critically short.
- Work with home healthcare agencies to arrange at-home follow-up care for patients who have been discharged early and for those whose admission was deferred because of limited bed space.
- Hospitals in a region should plan and work together to provide support and back-up and to transfer patients when either capacity or capability of a facility is exceeded.
- Review and refine the criteria hospitals currently use for temporarily canceling elective surgical procedures during surge periods. Plans should also be made for determining what and where emergency procedures will be performed during a pandemic.
- HERDS will be used to track bed availability and need; therefore, hospitals must:
    - ensure that an adequate number of staff on all shifts are assigned HERDS roles and are trained.

  - ensure that internal systems are in place to collect accurate data relating to bed supply and patient load.
- Develop policies and procedures for moving patients (e.g., cohorting) between nursing units in order to obtain optimal utilization of resources (staff).

4. Consumable and durable supplies

- Inventory existing supplies and estimate resources required to address patient needs during pandemic. For additional details see: (http://www.cdc.gov/flu/flusurge.htm).
- Consider stockpiling enough consumable resources such as masks for the duration of a pandemic wave (6-8 weeks).
- The existing system for tracking available medical supplies in the hospital should be evaluated as to whether it is capable of detecting rapid consumption, including PPE. Improve the system as needed to respond to growing demands for resources during an influenza pandemic.
- Assess anticipated needs for consumable and durable resources, and determine a trigger point for ordering extra resources. Estimate the need for respiratory care equipment (including mechanical ventilators), and develop a strategy for acquiring additional equipment if needed.
- Anticipate needs for antibiotics to treat bacterial complications of influenza and determine how supplies can be maintained during a pandemic.

5. Continuation of essential medical services

Address how essential medical services will be maintained for persons with chronic medical problems served by the hospital (e.g., hemodialysis patients, drug infusion therapy).

H. Mortuary Issues

Hospitals must prepare for the possibility that mass mortalities may result from pandemic influenza. The following steps should be included in the hospital plans:

- Assessment of current capacity for refrigeration of deceased persons
- Discussion of issues surrounding mass fatality with LHD, OEM and medical examiners including temporary sites to accommodate morgue surge
- Review current inventory of supplies (e.g., body bags) and project the needs to handle an increased number of deceased persons. Use of FluSurge software will assist in identifying potential needs (http://www.cdc.gov/flu/flusurge.htm)

I. Health Emergency Response Data System (HERDS): Resource Tracking

1. Purpose and Functions

The Health Emergency Response Data System (HERDS) resides on the secure New York State Department of Health (NYSDOH) Commerce Health Information Network (HIN)/Health Provider Network (HPN) and was designed as

a method to efficiently collect and aggregate data from hospitals and in the near future other healthcare facilities. HERDS serves four principle functions:

- collection of information necessary for effective resource planning;
- surveillance of specific disease conditions or detection of patterns of illness via hospital and ED admissions;
- monitoring the resource needs and availabilities of healthcare facilities during a public health emergency; and
- tracking of patients involved in a mass casualty event.

For the past several years, data has been collected through various HERDS survey instruments that have allowed the NYSDOH to better monitor hospital utilization rates and to profile the critical assets of hospitals statewide. This information has greatly assisted NYSDOH and LHDs in both their routine and emergency preparedness planning activities.

2. Tracking Resources in an Emergency

During an emergency event, the HERDS is a critical component of New York State's emergency response system. It promotes efficient collection of standardized information. When HERDS is activated during an emergency event, hospitals are required to complete a survey that lists specific resources and asks the hospital to indicate whether it needs these resources or can provide them. Before indicating the need for a resource, the hospital must first make an effort to acquire it through its normal channels which include its vendors and network partners.

HERDS can provide a snapshot view of critical data, needs and surpluses across a locality, a region or the state during an event or a longitudinal view of data across designated reporting periods through specially designed reports. HERDS provides a mechanism to ensure that hospital resource needs are formally registered with the health desk of the Office of Emergency Management. This information can then be reviewed, analyzed and evaluated by the NYSDOH, local health departments (LHDs) and/or a Multi-agency Coordinating Committee (MACC) which in turn makes recommendations on necessary actions through the Incident Command System at the state or local Office of Emergency Management (OEM).

Various incident specific data collection templates have been developed. These templates are designed to collect concise and accurate information on the hospital's staffing and materiel needs and what surpluses are available for deployment. The templates may be modified by NYSDOH as necessary during or between events, and new templates may be developed as needed. During a pandemic, information that would be collected might include:

- Staffing relative to number of patients
- Number of available intensive care unit beds (adult and pediatric)
- Number of available medical beds (adult and pediatric)
- Number of available emergency department (ED) beds

- Number of patients and/or waiting time in the ED
- Number of admitted patients waiting for inpatient beds (in ED or elsewhere)
- Number of hospitals on ED diversion
- Morgue capacity
- Shortages of medical supplies or equipment

3. Activation

HERDS may be activated by personnel from one of three different entities:

- LHDs,
- Regional Offices of the New York State Department of Health, or
- Central Office of NYSDOH.

The level at which the system is activated and administered will be dependent upon the nature and scope of the incident.

4. Requirements

To perform any administrative function within HERDS, state or local health department staff must have an active NYSDOH Commerce account and must also be assigned to at least one of the roles in the NYSDOH Commerce Communications Directory that grants access to HERDS.

The value of HERDS is highly dependent upon hospital cooperation. Hospitals must ensure that:

- an adequate number of staff members are trained in HERDS across all shifts;
- HERDS is integrated with the hospital ICS structure;
- internal systems are created in the hospital to facilitate timely and accurate channeling of information to HERDS data reporters;
- all resource needs and surpluses are accurately entered into HERDS
- computers with internet access should also be available in areas where emergency generator power supply is available in the event of power failures;
- as a backup to high speed internet access lines, at least one account with a phone dial-up or wireless cellular internet provider is maintained as an alternative means of accessing HERDS under conditions of communications infrastructure failure.

Drills will be conducted by the NYSDOH to test hospital HERDS readiness.

IV. Non-Hospital Healthcare Planning during the Interpandemic and Pandemic Alert Period

The inclusion of non-hospital healthcare partners including nursing homes, homecare, adult care facilities and primary care health centers in pandemic planning is critical to the successful management of a pandemic situation. This planning should focus on

protection of current patients/residents as well as assistance in managing patient surge where appropriate.

The hospital planning recommendations can serve as a model for planning in other healthcare settings. All healthcare facilities/agencies should do the following:

- Create a planning team and develop a written plan that builds on the emergency response plan.
- Ensure that key staff members have active Health Provider Network (HPN) accounts and information in the Communications Directory is complete and current.
- Establish a decision-making communications and coordinating structure that can be tested during the Interpandemic Period and will be activated during an influenza pandemic. Determine how to conduct surveillance for pandemic influenza in healthcare personnel and, for nursing homes and homecare, in the population served.
- Develop policies and procedures for managing pandemic influenza in patients and staff including proper infection control practices.
- Educate and train healthcare personnel on pandemic influenza and the healthcare facility's response plan; reinforce infection control practices.
- Develop an educational package directed toward staff and families focusing on the disease, its transmission and proper infection control procedures.
- Develop written material for visitors and others entering the facility focusing on the disease, its transmission and proper infection control procedures.
- Understand the local and state Incident Command System (ICS) structures and methods of communication and coordination with healthcare and public health partners.
- Determine how the facility will communicate with patients/residents/responsible parties and help educate the public regarding prevention and control measures.
- Develop a plan for procuring the supplies (e.g., PPE) needed to manage influenza patients.
- Develop a plan for maintaining/expanding operations during the pandemic period by working with healthcare partners, LHD and the local OEM to recruit volunteers.
- Determine how the facility will participate in the community plan for distributing either vaccine or antiviral drugs, including possibly serving as a point of dispensing and providing staff for alternative community points of distribution.

Additional considerations for specific provider types are delineated below.

A. Nursing Homes

During a pandemic, hospitals will likely be at maximum capacity and hospital staff will be overtaxed. Under these circumstances, there will have to be decisions made at the State level to alter the normal standards of care. Therefore, nursing homes should focus their pandemic planning on enhancing their ability to accept more fragile, sicker patients

from hospitals; retaining their residents rather than transferring them to the hospital; and surging beyond their licensed capacity.

Each of these actions, together with a possible significant increase in resident mortality, could contribute to staff grief and exhaustion. Staff should be monitored closely for stress and psycho-social intervention should be made available where indicated.

The following concepts should be reviewed and reinforced with staff:

- information on disease prevention strategies
- infection control techniques
- identification of symptoms to promote early detection and minimize the spread of disease should be reviewed with staff at all levels.

The nursing home should make arrangements to provide or arrange for immunization of their patients and staff.

All residents of LTCFs should have Health Care Proxies or End-of-Life decisions clarified or confirmed as appropriate.

The ultimate impact of a pandemic flu on the nursing home bed supply is uncertain. It may leave a great number of patients who need either short-term or long-term rehabilitation and many who may need nursing home care. However, if the influenza mortality rate is high, the post-pandemic bed need may be less than the number of available beds.

B. Adult Care Facilities (ACFs)

During a pandemic outbreak all levels of health and residential care facilities will be affected. Hospitals will be adversely affected due to surging admissions, and capacity will likely be at a maximum, and staff may be overwhelmed. As a result, nursing homes will suffer a sizeable ripple effect, necessitating a State level decision to alter standards of care. This decision to alter standards of care will then affect ACFs.

ACFs will need to generate plans for a pandemic to enhance their ability to retain, and possibly admit, sicker residents. ACFs will be unable to transfer acutely ill residents to hospitals or nursing homes, and in addition they may be faced with admitting residents that they would not care for under standard circumstances.

These conditions, coupled with the real potential for heightened resident mortality, may intensify staff grief and fatigue. Therefore, staff should be closely monitored for fatigue and stress, and physical rest, nutrition and hydration should be made available. In addition, psycho-social intervention should be offered as appropriate and indicated.

ACF staff education should be reviewed and enhanced at all levels to include:

- Information on disease prevention
- Infection control methodology

- Identification of early signs and symptoms in order to recognize and thus prevent the spread of disease
- Recognition of colleague stress and exhaustion

ACFs should make arrangements for immunization of both residents and staff.

All residents of ACFs should be given the opportunity to complete both Health Care Proxies and/or End-of-Life decisions documents (Living Wills). These documents should be clarified or confirmed as appropriate.

The fundamental effect of a pandemic flu event on the Adult Care Facility bed capacity is uncertain at best. Many who survive the initial disease onslaught will require some degree of rehabilitation, and others will likely require long-term residential care, perhaps at a higher acuity level. The mortality level is undetermined, and the eventual outcome may not exceed the bed supply at the ACF level, but may impact higher care levels.

As the level of clinical service and living arrangements vary widely across ACF providers, NYSDOH will provide guidance to ACFs which recognizes this variability.

C. Home Health Agencies (Certified Home Health Agencies, Licensed Home Care Agencies, Long-Term Home Health Care Programs and Hospices)

In a pandemic, the use of home health services as an alternative to hospitalization will be a key component in helping to control hospital surge. Therefore, it is important that home health agencies focus planning efforts on keeping patients out of the hospital and if possible, enhancing capacity so that hospital patients can be discharged more quickly.

Home Health Agencies (HHA) during the Interpandemic and Pandemic Alert Periods should:

- Review their emergency preparedness plans and incorporate any necessary revisions specific to the outbreak.
- Review the procedures and the process for accessing the HPN.
- Ensure that information contained on the Communication Directory is accurate and up-to-date.

All home care agencies must maintain an up-to-date patient roster which utilizes the Patient Classification System in Appendix 3-A. The agency's plan must include a strategy for meeting the care needs of patients in accordance with their classification, that is, reducing service to Level 2 and 3 patients while maintaining service to the Level 1 patients.

Patients should be classified on admission and periodically as their condition warrants. This information, as well as information on next of kin/responsible party, should be readily accessible for agency administrative staff.

The agency's plan should include working with home health agencies in neighboring counties and local nursing homes to temporarily admit patients to those providers. LHDs may need to work closely with their NYSDOH Regional Office to secure support for some of their public health activities (e.g., Points of Dispensing) so that LHD staff may be freed to care for their most fragile home care patients.

The following concepts should be reviewed and reinforced with staff:

- Information on disease prevention strategies
- Infection control techniques
- Identification of symptoms to promote early detection and minimize the spread of disease

The HHA should make arrangements to provide or arrange for immunization of their patients and staff.

Many agencies have tele-medicine equipment that could be used to monitor patients while limiting face-to-face contact. This technology could be extremely valuable during a pandemic.

D. Primary Care Providers (Community Health Centers, Physician Offices, Urgent Care Centers)

During a pandemic, the effective delivery of outpatient services and the use of primary care facilities as additional triage sites can be critical. The important functions that primary care facilities/providers should incorporate into their planning are:

- Collaboration with hospital and LHDs to establish telephone hotlines to provide advice to the public on whether to stay home or to seek care. This may help reduce the volume of "worried well."
- Serve as a referral point for hospital triage sites if it is determined that patients can be managed on the outpatient basis.
- Serve as additional triage (and treatment) sites to provide patients an alternative to presenting at the hospital, thus easing the burden on hospital EDs.

Key planning considerations for these settings are:

- development of triage and treatment procedures that minimize the risk of disease transmission (e.g., physical separation of patients, "sick call" hours).
- review and reinforcement of the following concepts with staff:
    - infection control practices;
    - enhancement of triage and treatment capacity through increase hours of operation and the use of volunteers.
- collaboration with hospitals and LHDs on public service messages that announce facility availability and hours of operation.

E. Emergency Medical Services

Pandemic influenza will increase the need for EMS activity. EMS activity will be impacted by an increased number of persons requesting care, expansion in triage activity and especially the opening of alternative treatment centers and inter-facility patient transfer.

As a healthcare sector that provides direct patient care, effective infection control will be critical to preserving EMS capacity and slowing the spread of influenza in the community. Therefore, EMS agencies must reinforce infection control practices including promoting annual influenza vaccination and the proper use of PPE. They must also develop plans to rapidly immunize direct care workers and key ancillary staff and distribute antivirals should they be made available.

Communication will also be a key factor both in preparation for and in response during a pandemic. Agencies must ensure that they have strong communication links with the county EMS Coordinator who will be working closely with the LHD, County OEM and the NYSDOH.

F. Non-Traditional Triage and Alternative Care Sites

If an influenza pandemic causes severe illness in large numbers of people, hospital and clinic capacity might be overwhelmed. In that case, non-traditional alternative sites for triage/ patient care may need to be established (e.g., school gymnasiums, armories, church halls). While it may not be desirable to provide care and treatment of influenza patients in a site not normally used for providing medical care, it may be necessary during a pandemic.

Establishing triage/treatment facilities in non-traditional sites is a significant task requiring resolution of numerous issues including who specifically will have legal responsibility for operating the site and how will it be supervised, staffed, supplied and equipped. It is likely that hospitals will be fully occupied with keeping sufficient healthy staff, equipment and supplies and maintaining their own facilities to meet the demands of the patients within their own institution. Local communities (LHDs, Emergency Managers, EMS) should plan for possible rapid development of alternative care sites using healthcare personnel willing to volunteer but not currently working in a hospital. Advance planning for and staff training on triage/treatment protocols, patient separation, patient flow and infection control procedures must occur.
The site selected for a treatment facility must accommodate the following infection control and patient care needs:

- Bed capacity and spatial separation of patients
- Facilities and supplies for hand hygiene
- Lavatory and shower capacity for large numbers of patients
- Food services (refrigeration, food handling, and preparation)
- Medical services
- Staffing for patient care and support services

- PPE supplies
- Cleaning/disinfection supplies
- Environmental services (linen, laundry, waste)
- Safety and security.

The success of even the best planned non-traditional triage and/or treatment site will hinge on the effective use of public service announcements that clearly explain the rationale for and the advantages of using the site to the community.

V. General Considerations

A. Infection Control

Adherence to basic infection control principles is paramount to containing the spread of influenza within facilities to healthcare workers and other patients. It may be assumed that there will be a limited supply, if any, of vaccine and antivirals. Therefore, infection control becomes even more important. These infection control principles include the early identification of potentially infectious patients and the immediate implementation of control measures for containment. Respiratory hygiene/cough etiquette should be utilized at all times, in all health care settings and points of entry into the healthcare system.

Section 4, Infection Control, is provided to assist healthcare facilities in planning for pandemic influenza and enhancement of infection control precautions according to the current global and local epidemiology of influenza. Infection control guidelines, including standard and droplet precautions, respiratory hygiene/cough etiquette, and hand hygiene are provided for all types of health care facilities and providers. The guidelines are specified for patients, employees, and visitors. Specific strategies for hospital triage and admission that minimize the risk of transmission are described.

Patients with known or suspected pandemic influenza should be placed on Standard and Droplet Precautions (use of surgical mask for the patient, spatial separation of 3 feet, private room or cohort) for the duration of their illness. Patient transport and movement should be limited to essential purposes only. If transport or movement is necessary, patients should be masked. Contact Precautions should be added if the patient has diarrhea. During aerosol-generating procedures, gloves, gowns, face/eye protection and an N95 (fit-tested) or other appropriate respirator should be worn by health care workers. The patient should also be placed in an Airborne Infection Isolation Room (AIIR). Additional work practice controls are summarized in Section 4: Infection Control.

Nosocomial outbreaks of influenza most often occur in residential facilities and are less commonly reported in acute care facilities. The risk of a nosocomial outbreak of influenza would increase if an influenza pandemic affected a local community for the following reasons:

- Use of non-traditional health care facilities (schools, community centers, etc.) increases the difficulty in adhering to infection control guidelines (e.g., spacing of patients, access to hand hygiene products, and PPE).
- Staff may become exposed and transmit infection while incubating or ill.

Identification and reporting of an influenza outbreak in a health care setting can be done through the HPN. Hospitals and nursing homes use the Nosocomial Outbreak Reporting Application to report nosocomial outbreaks.

B. Volunteers

1. Role in Preparedness and Emergency Response

Volunteers play an integral role in preparedness planning and emergency response and provide an organized way for medical and public health volunteers to offer their skills and expertise during local public health crises. Volunteers can assist in various roles during large-scale emergencies, such as an influenza pandemic or an act of terrorism, and can also work to strengthen the overall health and well-being of their communities. They may serve in various roles including all types of healthcare facilities, community PODs and alternate care sites.

The recruitment and deployment of volunteers is an important component of emergency preparedness and response. In order to ensure an effective and responsive volunteer program, hospitals, other healthcare facilities/agencies, LHDS and local OEMs must develop partnerships around recruitment, training and credentialing. This coordinated approach will help reduce the occurrence of an individual, whose name appears on multiple volunteer lists, therefore ensuring that deployment is achieved in an effective and efficient manner.

2. Public Health Preparedness Volunteer Practitioner Database

The NYSDOH maintains a statewide volunteer practitioner database on a secure, Internet accessible system located on the department's Health Information Network (HIN). This Public Health Preparedness Volunteer Practitioner Database retains names of licensed professionals who would be willing to volunteer their services in the event of a public health emergency. The purpose of this database is to assure that New York State will have adequate resources to prepare for and respond to any public health emergency, whether it is a declared disaster or other public health emergency.

In the event of an emergency, NYSDOH will initiate the activation of volunteer practitioners and the deployment of activated practitioners if there are multiple, simultaneous demands for additional practitioners from different parts of the state. Following activation, participating volunteer practitioners will provide services under the direction of the State, City or local health department or emergency management office or hospital to which they have been deployed by NYSDOH. Local health departments may access the Volunteer Practitioner Database to identify practitioners within their jurisdiction who have indicated they are willing to become a member of a local public health emergency preparedness effort.

3. Emergency System for the Advance Registration of Volunteer Health Professionals

In 2006, an added feature to this database will be the ability to certify the qualifications of an individual to serve as a health provider. When activated, the system will verify the identity and qualifications, which may include professional credentials and licenses, of those practitioners who, during an emergency, volunteer to serve as health providers. This new state-based system will coordinate with the federal initiative, Emergency System for the Advance Registration of Volunteer Health Professionals (ESAR-VHP). The purpose of ESAR-VHP System is to allow for advanced registration and credentialing of health professionals who would be utilized to augment a hospital or medical facility's staff during a declared emergency.

4. Medical Reserve Corps

There are currently 19 Medical Reserve Corps (MRC) in NYS that supplement local communities as they prepare and respond in the event of a public health emergency. These local MRCs are comprised of local medical and non medical volunteers who are trained to respond to health crises. The MRCs are established, activated and operated by the local community, in concert with established emergency response and public health systems. The MRCs are a valuable resource to local health departments and hospitals in their preparedness planning and emergency response.

In responding to a disaster situation, other states and localities will depend upon the complementary capabilities that the MRCs and the NYSDOH Public Health Preparedness Practitioner Program provide. With the added functionality of ESAR-VHP to the volunteer system, hospitals will be able to verify credentials and privileges of volunteers who would typically respond to either a designated healthcare facility or the site of the healthcare emergency.

5. Volunteer Recruitment

Identification and recruitment of volunteers is needed to increase staffing capacity during pandemic influenza. Augmentation of existing volunteer lists should be an ongoing effort by LHDS, hospitals, and other health care facilities/agencies. Volunteers who agree to be called on pursuant to a state or county sponsored volunteer program in the event of an emergency should review the protections offered by Public Officers Law §17 or §18, if applicable (see Appendix 1-H) or other county resolutions.

C. Mass Fatality

Planning for an influenza pandemic must include preparation for a potential mass fatality event. Hospitals must assess their refrigeration capacity and their inventory of body bags and other supplies needed to handle a significant increase of deceased persons. Hospitals must also understand their county's mass fatality plan and complete mortality reports as required by NYSDOH/DHHS.

Funeral firms must also develop a mass fatality plan that reinforces infection control (e.g. vaccination, the proper use of PPE and terminal disinfection procedures) ; identifies additional funeral services resources; and assesses additional equipment and supply needs.

Every LHD must work with the county OEM and county Coroner/Medical Examiner to assess current capacities and develop a plan for the care, transportation and disposition of the dead (i.e., mass fatality/mortality) including storage and dispositions that are outside of the current/standard means.

The NYSDOH must:

- Develop plans to modify the processing of death certificates.
- Clearly communicate mortality reporting requirements to hospitals.
- Require registrars, medical examiners and coroners to develop emergency staffing plans to handle the anticipated surge in volume during a pandemic.
- Coordinate actions with New York City Vital Statistics.

D. Altered Standards of Care

Current health care standards are based on providing the best possible care for every individual that interfaces with the health care system. These standards are based on the unspoken precepts that the supply of service is essentially unlimited and that all patients, with only a few exceptions, have the right to the best level of care that society can provide, regardless of long term quality of life issues or prognosis.

The possibility of the occurrence of pandemic influenza as well as other man made mass casualty situations is forcing society at all levels to re-examine these concepts. The health care system in NYS is operating roughly at 80-95% of full capacity. NYS has roughly 242 hospitals with a total of approximately 62,800 staffed beds. Of these, perhaps 3,000-12,000 are open for new admissions at any one time. If a severe influenza pandemic were to occur, NYS, with a population of 20 million, could expect over 650,000 hospitalizations over a six week period according to numbers calculated by HHS. The peak surge of the pandemic would likely have over 200,000 weekly hospitalizations according to the same statistics. This assumes an attack rate of 35% with a 3.5% hospitalization rate. It is probable that using current disaster planning models hospitals could further expand their available bed counts by approximately 25-35%, thus making available roughly a total of 18,000 to 33,000 beds for new admissions. It becomes obvious that under these circumstances, our current health care system would be overwhelmed and incapable of meeting demand under our current standards and precepts.

The New York State Department of Health will convene an expert panel to develop guidance for hospitals and other healthcare facilities on altered standards of care. This guidance will include discussion of the management of limited staff and material resources, such as ventilators, in the event of a pandemic.

VI. Activities by Pandemic Period

A. Occupational Health

Interpandemic and Pandemic Alert Periods

Healthcare Providers:

- Reinforce infection control education and training of healthcare personnel regardless of the setting (i.e., hospital, long term care facility, home health agency, EMS).
- Determine how training and education will be provided for all health care personnel that may be affected by a pandemic influenza outbreak.
- Educate healthcare personnel about:
  - The importance of strict adherence to infection control measures especially hand hygiene.
  - Standard and transmission-based precautions, and respiratory hygiene /cough etiquette.
  - Avoidance of hand to mucous membrane contact (eyes, nose, mouth, etc.), regardless of glove use.
  - Influenza, including the signs and symptoms, epidemiology, and transmission. Include the enhanced risk of transmission involved with procedures that produce aerosols (e.g., bronchoscopy, intubation/extubation, nebulized respiratory treatments, and deep tracheal suctioning).
  - On the proper use of personal protective equipment (PPE) as per Standard and Transmission-based Precautions, including donning, removing and disposing of PPE (see Section 4: Infection Control). http://www.cdc.gov/ncidod/hip/ppe/default.htm
- Develop work restriction policies and ensure staff members receive education and training on these policies.
- Develop a strategy for regularly updating clinicians, direct patient care staff and screening/triage staff on the current status of influenza.
- Develop a plan to provide for the physical needs at work (food, rest during prolonged shifts, recuperation – including breaks from PPE).
- Designate those responsible for the monitoring of employee health concerns in regard to respiratory infections. The most appropriate entity would be an employee health service. If such a service is not available, then a medical director, infection control professional, or other appropriate person should be designated.
- Instruct all healthcare workers to report influenza-like illness to the facility designate immediately.
  - If onset of employee illness occurs while working then instruct the healthcare worker to don a surgical mask and report to a designated area.

  - If onset of illness occurs at home, instruct the employees to report their illness by telephone to the facility designate and to not report to work until symptoms resolve.
  - Assess whether any employee illness is part of a healthcare-related cluster of illness.
  - Investigate any clusters of influenza-like illness and report to the NYSDOH, Regional Epidemiology Program.
- Mental Health concerns of all healthcare workers need to be considered in planning for an influenza pandemic.
- The facility must have a policy to address staff members who refuse to work with influenza patients.
- Hospitals should review their HPOD (Hospital Point of Dispensing) Annex regarding distribution and administration of vaccines and antiviral medications during a pandemic.

Local Health Departments:

- Report clusters of confirmed or suspect pandemic influenza reported by Article 28 facilities to the NYSDOH, Regional Epidemiology Program.
- Assist all non-Article 28 facilities in their investigations of suspect or confirmed pandemic influenza clusters. Contact the Regional Office, NYSDOH, Regional Epidemiology Program to report the cluster and for assistance, if needed.

State Health Department:

- Provide consultation to Article 28 facilities (i.e., hospitals, nursing homes and diagnostic and treatment) reporting suspect or confirmed cases of novel influenza or influenza outbreaks.
- Provide consultation to LHDs and healthcare providers, as needed, on suspect novel influenza cases or influenza outbreaks involving non-Article 28 facilities.
- Provide updated information and materials to LHDs.
- Review each Hospital's HPOD Annex.

Pandemic Period

Healthcare Providers:

- Any staff with a question of fever must have their temperature checked. All those with respiratory symptoms and/or fever > 100º F should be furloughed and evaluated.
- All health care workers with direct patient contact should be monitored daily for fever and respiratory symptoms during a local pandemic.
- Complete HERDS surveys on employee health status when requested by NYSDOH.

Local Health Departments:

- Update providers regularly as the influenza pandemic unfolds.
- Provide or facilitate testing and investigation of pandemic influenza cases.
- Maintain activities as described in Pandemic Alert Period.

State Health Department:

- Update LHDs and providers regularly as the influenza pandemic unfolds.

B. Hospital Triage and Clinical Evaluation

Interpandemic and Pandemic Alert Periods

Hospitals:

- Ensure that all medical staff and staff trained in HEICS' roles have a current account on the Health Provider Network (HPN).
- Maintain normal triage capability and infection control practices.
- Develop a plan and confirm ability to enhance triage capacity as needed by use of alternate areas of existing facilities and use of volunteer staff.
- Develop strategies for triage and admission that minimize the risk of transmission to staff, patients and visitors (see Section 4: Infection Control).
- Identify and train volunteers to work with LHD, Emergency Managers, Citizen Corps and Medical Reserve Corps to enhance triage staff capacity.
- Reinforce the use of Respiratory Hygiene/Cough Etiquette (see Section 4: Infection Control) as the first line of defense for the prevention of transmission of respiratory infections.
- Monitor to assess need for enhanced triage capacity, including:
    - The proportion of emergency room visits attributable to influenza,
    - The proportion of influenza cases requiring hospitalization,
    - The capacity of the hospital to accommodate influenza cases,
    - The proportion of cases who normally live with high-risk individuals or who have no support at home and cannot care for themselves,
    - Available/limited resources in the facility,
    - Ambulance re-routing to other acute care setting due to full emergency rooms may serve as another trigger for further implementation of plans for non- traditional triage sites.

Local Health Departments:

- Work with healthcare providers on securing volunteers to be used to expand the capacity of traditional triage to alternate areas of existing buildings.
- Monitor for indications that enhanced triage capacity may be needed, including reports from sentinel physician or walk-in clinics that they cannot accommodate all of the patients requesting appointments for influenza-like illness.
- Maintain interface with hospitals and other primary care providers.

State Health Department:

- Work with healthcare providers on securing volunteers to be used to expand the capacity of traditional triage to alternate areas of existing buildings.
- Monitor for indications that enhanced triage capacity may be needed, including reports from sentinel physician or walk-in clinics that they cannot accommodate all of the patients requesting appointments for influenza-like illness.
- Create HERDS templates in anticipation of need for information on patient volume, staffing levels and hospital resource needs during pandemic.
- Provide ongoing information to healthcare facilities and LHDs via the HPN on the progression of influenza that will inform their decisions on triage procedures.
- Verify compliance with regulatory requirement (Article 28 facilities) HPN accounts and communication directory information.

Pandemic Period

Hospitals:

- Enhance capacity for triage and waiting areas for persons with febrile and/or respiratory illness based on pre-existing emergency preparedness plans.
- Implement emergency response plans to rapidly identify changing patterns of need and modify or redirect policy.
- Work with local OEM and LHD to alert and deploy volunteers.
- Consult HPN at least daily for most alerts and advisories from NYSDOH and CDC, etc.
- Be prepared to provide requested information on cases related to the outbreak to the LHD and NYSDOH.

Local Health Departments:

- Update providers regularly as the influenza pandemic unfolds.
- Recommend activation and deployment of volunteers to local OEM to assist facilities.

- Work with NYSDOH to disseminate clear messages to providers to encourage expanding triage capacity/hours of operation and to inform public of triage options.
- Work with NYSDOH to activation as necessary.

State Health Department:

- Update providers regularly as the influenza pandemic unfolds.
- Work with LHDs and local OEMs, to assist facilities in alerting and deploying volunteers.
- Work with LHDs to disseminate clear messages to providers to encourage expanding triage capacity/hours of operation and to inform public of triage options.
- Coordinate the activation of HERDS with LHDs as necessary.

C. Hospital Surge Capacity

Interpandemic and Pandemic Alert Periods

Hospitals:

- Integrate pandemic planning with the emergency plans of the hospital in order to make best use of existing plans and resources.
- Assess capacity and capability of health care and emergency response systems to meet needs in a pandemic.
- Ensure that key staff members have current HPN accounts and that an adequate number of staff across all shifts is trained and assigned roles in HERDS.
- Develop a comprehensive plan to address a large influx of patients seeking care that will create demands for healthcare resources that greatly exceed those normally available. Plans must include strategies to enhance staffing; increase available beds; stockpiling necessary supplies; and continue essential medical services.
    - Staffing – estimate projected needs, develop efficient care models (e.g., cohorting), utilize trainees (e.g., medical students), work with LHD, OEM and community partners to recruit volunteers, and execute mutual aid agreements with community partners for staffing assistance.
    - Bed Capacity – Identify all areas suitable for patient care, update Bed Surge Annex, review admission and discharge criteria; establish triggers for ceasing elective procedures; explore with LHD and OEM the identification of possible non-traditional care sites; and develop agreements with other facilities.
    - Supplies – inventory supplies, estimate needs of supplies, medication and equipment, develop efficient tracking system and trigger points for ordering.

    - Essential medical services – identify those services that must be maintained (e.g., dialysis) and develop a plan to ensure their continuance.
- Educate and train staff on Surge Plan; conduct and evaluate drills on Surge Plan.

Local Health Departments:

- Recruit volunteers that could be used to enhance hospital staffing.
- Identify space in the community that could be used as an alternative non-traditional care site.
- Ensure that key staff members have current HPN accounts and that an adequate number of staff is trained and assigned roles in HERDS.

State Health Department:

- Assess capacity and capability of health care and emergency response systems to meet needs in a pandemic.
- Develop HERDS templates in anticipation of resource needs in a pandemic.

Pandemic Period

Hospitals:

- Implement emergency response plans to rapidly identify changing patterns of need and modify or redirect policy accordingly.
- Request local OEM to activate and deploy volunteers as necessary.
- Implement pandemic response activities.
- As needed, request LHD and OEM to establish inpatient medical care in non-traditional facilities to provide hospital bed surge capacity.
- Report any resource needs via HERDS.

Local Health Departments:

- Coordinate the activation of HERDS with the NYSDOH.
- Work with the NYSDOH and other members of the OEM Health Desk within the incident command structure to review and make recommendations regarding the priority of healthcare resource requests.
- Work with local OEM to establish non-traditional care sites if necessary.
- Recommend activation and deployment of volunteers to local OEM to assist facilities.

State Health Department:

- Coordinate the activation of HERDS with the LHD.
- Work with the LHD and other members of the OEM Health Desk within the incident command structure to review and make recommendations regarding the priority of healthcare resource requests.

- Expedite any necessary approvals for hospitals to temporarily exceed bed capacity and/or establish extension sites to address surge issues.
- Apprise healthcare providers of any determinations relating to altered standards of care.

D. HERDS: Resource Allocation

Interpandemic and Pandemic Alert Periods

Hospitals:

- Ensure that multiple staff on all shifts are assigned to and trained in HERDS roles.
- Ensure that internal systems have been established to accurately gather information on hospital resources (staff, medical supplies and equipment) in a timely manner.
- Ensure that internal HERDS reporting system is linked to hospital ICS.

Local Health Departments:

- Ensure that adequate staff is trained in use of the HERDS system and roles.

State Health Department:

- Create a HERDS template to monitor the impact of the pandemic on hospitals in the community. The information HERDS will collect and communicate will include:
  - Staffing relative to number of patients
  - Number of available Intensive Care Unit beds (adult and pediatric)
  - Number of available medical beds (adult and pediatric)
  - Number of available emergency department (ED) beds
  - Number of patients and/or waiting time in the ED
  - Number of admitted patients waiting for inpatient beds (in ED or elsewhere)
  - Number of hospitals on ED diversion
  - Morgue capacity
  - Shortages of medical supplies or equipment

Pandemic Period

Healthcare Providers:

- Implement emergency response plans including ongoing collection of data concerning medical and material supplies and their allocation.
- Complete HERDS survey information in accordance with required frequency based on needs and the evolving pandemic.

Local Health Departments:

- Consult with NYSDOH regarding activation of HERDS to begin collection of hospital resources data.

State Health Department:

- Implement emergency response plans including continuous collection of data concerning medical and material supplies and their allocation.
- Initiate a HERDS incident and begin data collection and analysis.
- Communicate information to LHDs and appropriate level of Incident Command.

E. Nursing Homes

Interpandemic and Pandemic Alert Periods

Nursing Home Providers:

- Recruit and train volunteers in coordination with LHD, OEM and hospitals.
- Review emergency plans including surge plan and staff call-down lists and revise as needed. Staff to be educated on any changes.
- HPN Coordinator(s) to review and revise the Communications Directory, including Emergency Office 24/7 Contacts and Contact Persons.
- HPN Coordinator(s) to obtain HPN accounts for all Contact Persons listed in the Communications Directory.
- Reinforce infection control education and training of personnel, including strict adherence to hand hygiene and standard respiratory precautions.
- Educate personnel on proper use of Personal Protective Equipment (PPE), including paper 'surgical masks', gowns and gloves.
- Educate personnel and cognitively aware residents on avoidance of hand to mucous membrane contact, and need for thorough hand hygiene if such contact is made.
- Instruct all personnel to report influenza-like symptoms/illness to employee health or designated nursing staff immediately.
- Educate personnel on influenza, including epidemiology, signs and symptoms, and transmission.
- Encourage personnel and residents to obtain appropriate influenza vaccines.
- Investigate any clusters of influenza-like illness and report to LHD and NYSDOH. Nosocomial Outbreak Reporting Application (NORA) may be used for reporting influenza-like outbreaks to NYSDOH.
- Review contact numbers for NYSDOH Regional Office and Duty Officer, LHD, local OEM and community partners with appropriate staff and maintain in a location readily accessible by

staff. Include both a primary and secondary method of communication where possible (e.g., phone, fax, e-mail).
- Educate appropriate staff on the location and purpose of this information.

Local Health Departments:
- Recruit and train volunteers in coordination with OEM, hospitals and other health care facilities/agencies.
- Notify NYSDOH Regional Epidemiology Office of diagnosed influenza cases within the community, including those reported by nursing homes.

State Health Department:
- Issue routine flu advisory to health care providers encouraging vaccination.
- Health Alerts will be posted on the HPN, and blast fax alerts will be sent to all nursing homes, advising attention at once to the HPN/HAN.
- NYSDOH Regional Offices will review facilities' surge plans for ability to receive an influx of patients.
- Nursing homes *currently* managing ventilator dependent residents will be assessed for extended vent capacity through the facility surge plans.
- Work with LHDs to develop HERDS templates focused on anticipated needs during a pandemic flu.
- Continue to recruit volunteers on the NYSDOH Public Health Preparedness Volunteer Practitioner Database.

Pandemic Period

Nursing Home Providers:
- Review emergency preparedness and infection control plans with staff.
- Be prepared to implement surge plan.
- Inform facility staff, visitors, vendors and subcontractors of the emergency situation.
- Attending physicians and/or Infection Control Practitioners will notify the NYSDOH Regional Office and LHD of all influenza diagnoses.
- Instruct all personnel to report influenza-like symptoms/illness to employee health or designated nursing staff immediately.
- Be prepared to make reports to NYSDOH through HERDS regarding influenza cases, staffing and resources levels and census.

- Review and post contact numbers (see above) in a readily accessible location. Include both a primary and secondary method of communication (e.g., phone, fax, e-mail) where possible.
- Nursing homes in affected counties within NYS should restrict visitation from outside vendors and visitors.
- Minimize/cancel group activities and outside group visits.
- Institute isolation in accordance with plan where necessary.
- Activate and deploy recruited volunteers
- Request additional volunteers from local OEM if necessary.
- Report emergency resource requests to the local OEM health desk through HERDS.

Local Health Departments:

- Recommend activation and deployment of volunteers to local OEM to assist facilities.
- Work with NYSDOH to regularly update providers as the influenza pandemic unfolds.
- Assist local OEM by providing guidance on health related decisions and prioritization of asset requests consistent with ICS.
- Coordinate activation of HERDS with NYSDOH.

State Health Department:

- Update LHDs and OEMs providers regularly through the HPN and other communication routes as the influenza pandemic unfolds.
- Use HERDS to assist LHDs and local OEMs in identifying nursing homes that are projecting shortages or have shortages of food, supplies, pharmaceuticals, equipment and assists with acquisitions as possible.
- Work with LHDs and Wadsworth Center to coordinate testing.
- Use HERDS to identify to LHD and local OEM nursing homes that could accept additional ventilator residents/patients and identify needed supplies, equipment and staff for these facilities.
- Assist local OEM by providing guidance on health related decisions and prioritization of asset requests consistent with ICS.
- Work with nursing homes capable of surging capacity to provide temporary emergency approval for increased capacity.
- Work with LHDs to investigate and report special pandemic situations.
- Issue guidance to providers on decisions made on altered standards of care.
- Communicate with the appropriate level of SEMO to determine the status of needed health care volunteers.
- Activate and deploy volunteers as demand for volunteers at the local level exceeds local resources in accordance with ICS.

F. Adult Care Facilities:

Interpandemic and Pandemic Alert Periods

Adult Home Providers:

- Physicians will report any influenza diagnoses to the ACF administrator.
- Administrator will notify **NYSDOH Regional Office** and **LHD** of influenza diagnoses on a regular basis.
- Review emergency plans including surge plans and call-down lists and revise as needed. Staff to be educated on any changes.
- HPN Coordinator(s) to review and revise the Communications Directory, including Emergency Office 24/7 Contacts and Contact Persons.
- HPN Coordinator(s) to obtain HPN accounts for all Contact Persons listed in the Communications Directory.
- Reinforce infection control education of personnel and residents, including strict adherence to hand hygiene and standard respiratory precautions.
- Educate personnel and residents on proper use of Personal Protective Equipment (PPE), including paper 'surgical masks', gowns and gloves.
- Educate personnel and residents on avoidance of hand to mucous membrane contact, and need for thorough hand washing if such contact is made.
- Establish procedures to assure precautionary measures for cognitively impaired residents.
- Determine how the facility will communicate with resident representatives and advocates and help educate them regarding prevention and control measures.
- Develop a plan for procuring the supplies (e.g., PPE) needed to manage residents with influenza.
- Instruct all personnel to report influenza-like symptoms/illness to designated staff **immediately**.
- Educate personnel on influenza, including signs and symptoms, and transmission.
- Encourage personnel to obtain appropriate influenza vaccines.
- Investigate any clusters of influenza-like illness and report to **LHD** and **NYSDOH Regional Office**.
- Review contact numbers for **NYSDOH Regional Office and Duty Officer, LHD, local OEM, community partners with** appropriate staff and maintain in a location readily accessible by staff. Include both a primary and secondary method of communication where possible (e.g., phone, fax, e-mail).
- Educate appropriate staff on the location and purpose of this information.

- Recruit and train volunteers in coordination with LHDs, OEM, hospitals and other health care facilities/agencies.

Local Health Departments:

- Recruit and train volunteers in coordination with OEM, hospitals and other health care facilities/agencies.
- **N**otify **NYSDOH Regional Epidemiology Office** of diagnosed influenza cases within the community, including those reported by adult homes.

State Health Department:

- Issue additional guidance that addresses the wide variations across ACF providers.
- Routine flu advisory to health care providers encouraging vaccination.
- Health Alerts will be posted on the HPN, and blast fax alerts will be sent to adult homes, advising attention at once to the HPN/HAN.
- **NYSDOH Regional Offices** will review facilities' emergency plans for ability to receive an influx of patients from the community.
- When necessary the **NYSDOH** Regional Offices will investigate (via phone call to facility) any reported outbreaks.
- Continue to recruit volunteers on the NYSDOH Public Health Preparedness Volunteer Practitioner Database.

Pandemic Period

Adult Home Providers:

- Review emergency preparedness plans and infection control principles (e.g., respiratory precautions, hand hygiene) with staff.
- Be prepared to implement the surge plan.
- Inform facility staff, visitors, vendors and subcontractors of the emergency situation.
- Administrators will notify **NYSDOH Regional Office** and **LHD** of all influenza diagnoses.
- Instruct all personnel to report influenza-like symptoms/illness to employee health or designated staff immediately.
- Be prepared to make reports to NYSDOH through HERDS regarding influenza cases, staffing and resources levels and census.
- Review and post contact numbers (see above) in a readily accessible location. Include both a primary and secondary method of communication (e.g., phone, fax, e-mail) where possible.

- Adult homes in affected counties within NYS will restrict visitation from outside vendors and visitors.
- All group activities and outside group visits scheduled by the facility will be cancelled.
- Residents may be isolated in rooms as deemed appropriate, with a physician order.
- Residents so isolated will be provided with activities and regular staff and/or volunteer visits as possible.
- Meals can be provided by tray service with disposable tableware.
- Staff should be closely monitored for fatigue and stress, and physical rest, nutrition and hydration should be made available. In addition, psycho-social intervention should be offered as appropriate and indicated.
- Activate and deploy recruited and trained volunteers.
- Request additional volunteers from OEM if necessary.
- Report emergency resource requests to the local OEM health desk.

Local Health Departments:

- Activate and deploy volunteers to assist in public health efforts (e.g., public health home care visits, isolation/quarantine visits).
- Request additional volunteer resources from local OEM to assist public health if necessary. If not necessary, assist as needed or directed by OEM.
- Work with **NYSDOH** to regularly update providers as the influenza pandemic unfolds.
- Assists in identifying adult homes that are projecting shortages or have shortages of food, supplies, pharmaceuticals, equipment and assists with acquisitions as possible.

State Health Department:

- Update **LHDs, OEMs** and providers regularly through the HPN and other communication routes as the influenza pandemic unfolds.
- Assists in identifying adult homes that are projecting shortages or have shortages of food, supplies, pharmaceuticals, equipment and assists with acquisitions as possible.
- Work with **LHDs** and **Wadsworth Center** to coordinate testing.
- Requests information from providers as necessary.
- Work with **LHDs** to investigate and report special pandemic situations.
- Communicate with the appropriate level of SEMO to determine the status of needed health care volunteers.
- Activate and deploy volunteers as demand for volunteers at the local level exceeds local resources in accordance with ICS.

G. Home Health Agencies

Interpandemic and Pandemic Alert Periods

Home Health Agencies:

- Develop emergency preparedness plans which include: 24/7 contact telephone number; a current staff call-down list; and a patient locator system; and a plan to enhance capacity (surge plan).
- Maintain a contact list of key community partners including the LHD, local emergency manager, NYSDOH Regional Office and other healthcare providers.
- Maintain an up-to-date patient roster which utilizes the Patient Classification System in Appendix 3-A.
- Ensure that key staff members have current HPN accounts and maintain complete and current information in the Communication Directory.
- Educate staff on disease prevention strategies, including infection control techniques (including use of PPE) should be reviewed and reinforced.
- Review with staff at all levels the identification of symptoms to promote early detection and minimize the spread of disease.
- Arrange for or provide immunizations to staff.
- Recruit and train volunteers in coordination with LHDs, OEM, hospitals and other health care facilities/agencies.

Local Health Departments:

- Work with NYSDOH to provide public education on influenza.
- Recruit and train volunteers in coordination with OEM, hospitals and other health care facilities/agencies.

State Health Department:

- Review HHAs emergency preparedness plans for completeness and adequacy during the initial and recertification survey process.
- Provide technical assistance and guidance as well as disseminate up-to-date pertinent information and advisory alerts.
- Utilize the HPN to update and communicate information such as the release of annual Influenza Prevention and Control advisories and the monitoring of vaccine supply.
- Work with Home Health Provider Organizations to assist in the provision of educational updates, maintaining resources and disseminating information.
- Continue to recruit volunteers on the NYSDOH Public Health Preparedness Volunteer Practitioner Database.

Pandemic Period

Home Health Agencies:

- Implement surge plan; work with all available resources including other agencies, family and facility based providers such as hospitals and nursing homes to provide necessary services to Level 1 patients.
- Maintain frequent contacts with Level 2 and Level 3 patients to assess their needs and the continued availability of back up caregiver support will be necessary as the conditions of these individuals may change rapidly and unpredictably.
- Conduct frequent monitoring of patients and staff for signs and symptoms of disease and the need for potential quarantine.
- Continue immunization efforts.
- Report information on influenza cases, patient census, staffing and ability to provide care in accordance with NYSDOH requests.
- Work with LHD and county OEM to secure volunteers if necessary.
- Alert OEM health desk regarding any emergency resource needs.
- Activate and deploy recruited and trained volunteers.
- Request additional volunteers from OEM if necessary.

Local Health Departments:

- Work with NYSDOH to update public regularly as the influenza pandemic unfolds.
- Activate and deploy volunteers to assist in public health efforts (e.g., public health home care visits, isolation/quarantine visits)
- Request additional volunteer resources from local OEM to assist public health if necessary. If not necessary, assist as needed or directed by OEM.

State Health Department:

- Continue to provide information through the HPN, and other communication channels to the HHAs.
- Assist agencies' efforts to obtain additional resources by facilitating approval for agencies to provide care in counties not on their license.
- Assist LHDs that operate HHAs with their Public Health activities (e.g., POD) to free staff to care for Level 1 patients.
- Monitor hotline activities and contact individual HHAs as necessary.
- Communicate with the appropriate level of SEMO to determine the status of needed health care volunteers.
- Activate and deploy volunteers as demand for volunteers at the local level exceeds local resources in accordance with ICS.

H. Primary Care Providers (e.g., Physician Offices, Health Centers, Urgent Care Centers)

Interpandemic and Pandemic Alert Periods

Primary Care Providers:

- Obtain and keep current an account on the Health Provider Network (HPN); complete information in Communications Directory and keep current.
- Maintain normal triage/treatment capability and infection control practices.
- Participate in planning with local hospitals and LHDs regarding "surge" triage, referral for outpatient care and assistance with public hotlines to advise on if and where to seek care.
- Develop a plan and confirm ability to enhance triage/treatment capacity as needed by use of alternate areas of existing facilities and use of volunteer staff.
- Develop strategies for triage and treatment that minimize the risk of transmission to staff, patients and visitors (see Section 4: Infection Control).
- Reinforce the use of respiratory hygiene/cough etiquette as the first line of defense for the prevention of transmission of respiratory infections (see Section 4: Infection Control).
- Monitor for indications that enhanced triage/outpatient treatment is needed, including reports from sentinel physician or walk-in clinics that they cannot accommodate all of the patients requesting appointments for influenza-like illness. *The triage process will evolve with the changing epidemic conditions.*
- Maintain interface with LHD and NYSDOH and regularly consult HPN for indications that influenza activity is increasing.
- If admitting a patient directly to the hospital, respiratory hygiene/cough etiquette should be followed, including giving the patient a surgical mask to wear.
- Recruit and train volunteers in coordination with LHDs, OEM, hospitals and other health care facilities/agencies.

Local Health Departments:

- Work with primary care providers on securing volunteers to be used to expand the capacity of traditional triage.
- Monitor for indications that enhanced triage capacity may be needed, including reports from sentinel physician or walk-in clinics that they cannot accommodate all of the patients requesting appointments for influenza-like illness.
- Maintain interface with hospitals and other primary care providers

- Work with primary care providers on securing volunteers to be used to expand the capacity of traditional triage.

State Health Department:

- Work with healthcare providers on securing volunteers to be used to expand the capacity of traditional triage.
- Monitor for indications that enhanced triage capacity may be needed, including reports from sentinel physician or walk-in clinics that they cannot accommodate all of the patients requesting appointments for influenza-like illness.
- Provide ongoing information to healthcare facilities and LHDs via the HPN on the progression of influenza that will inform their decisions on triage procedures.
- Verify compliance with regulatory requirement (Article 28 facilities) HPN accounts and communication directory information.
- Promote enrollment in NYSDOH Public Health Preparedness Volunteer Practitioner Program.

Pandemic Period

Primary Care Providers:

- Enhance capacity for triage, treatment, waiting areas for persons with febrile and/or respiratory illness based on pre-existing emergency preparedness plans (e.g., expanding hours of operation).
- Request local OEM to alert and deploy volunteers as necessary
- Consult HPN at least daily and comply with LHD or NYSDOH requests for information.
- Be prepared to provide requested information on cases related to the outbreak to the LHD and NYSDOH

Local Health Departments:

- Update providers regularly as the influenza pandemic unfolds.
- Activate and deploy volunteers to assist in public health efforts (e.g., public health home care visits, isolation/quarantine visits).
- Request additional volunteer resources from local OEM to assist public health if necessary. If not necessary, assist as needed or directed by OEM.
- Work with NYSDOH to disseminate clear messages to providers to encourage expanding triage capacity/hours of operation and to inform public of triage options.

State Health Department:

- Update providers regularly via HPN and public information as the influenza pandemic unfolds.
- Communicate with appropriate level of SEMO to determine status of needed health care volunteers.
- Activate and deploy volunteers as demand for volunteers at the local level exceeds local resources in accordance with ICS.
- Work with LHDs to disseminate clear messages to providers to encourage expanding triage and treatment capacity/hours of operation and to inform public of triage options.

I. Emergency Medical Services

Interpandemic and Pandemic Alert Periods

EMS Agencies:

- Promote routine annual influenza vaccination.
- Develop an internal plan to immunize all direct care providers and essential ancillary staff in a short period of time, should a vaccine be made available for a novel influenza virus causing a pandemic. Levels of priority staff need to be established as vaccine availability may be limited.
- Develop a plan to provide antiviral medications for prophylaxis and/or treatment of all direct care providers and essential ancillary staff should antivirals be made available for a novel influenza virus causing a pandemic. Levels of priority staff need to be established as antiviral availability may be limited.
- Reinforce infection control education and training of EMS personnel as described in Employee Health section.
- Ill staff should not report to work.
- Develop a plan for enhancing staffing and EMS capacity.
- Designate contact person(s) to receive further updates from LHD.

Local Health Departments:

- Working with state and local EMS agencies develop a plan to immunize all direct care providers and essential ancillary staff in a short period of time, should a vaccine be made available for a novel influenza virus causing a pandemic. Levels of priority staff need to be established as vaccine availability may be limited.
- Develop a plan to provide antiviral medications for prophylaxis and/or treatment of all direct care providers and essential ancillary staff should antivirals be made available for a novel influenza virus causing a pandemic. Levels of priority staff need to be established, as antiviral availability may be limited.

- Work with State DOH to offer and coordinate infection control education and training of EMS personnel.
- Coordinate and collaborate with the County Emergency Manager and EMS coordinator to identify alternate means for transporting non-critically ill patients to and between medical facilities.
- Identify a liaison to the County Emergency Medical Services Coordinator.

State Health Department:

- Working with the LHDs to develop a plan to provide antiviral medications for prophylaxis and/or treatment of all direct care providers and essential ancillary staff should antivirals be made available for a novel influenza virus causing a pandemic. Levels of priority staff need to be established as antiviral availability may be limited.
- Develop and provide infection control education and training of EMS personnel. Promote routine annual influenza vaccination of EMS personnel throughout the State.

Pandemic Period

EMS Agencies:

- Identify agency resources that may be (or become) limited during a pandemic. Communicate with EMS Coordinator:
  - Staffing
  - Medical Supplies
  - Personal Protective Equipment
- Monitor/identify critical gaps in ability to provide emergency medical services. Communicate with EMS Coordinator and LHD.
- Implement plan to provide antiviral medications for prophylaxis and/or treatment of all direct care providers, essential ancillary staff and inpatients should antivirals be made available for a novel influenza virus causing a pandemic. Levels of priority staff and patients need to be established, as antiviral availability may be limited.

Local Health Departments:

- Coordinate/collaborate with agencies and the County EMS Coordinator as the influenza pandemic evolves.
- LHD's may be made aware of gaps in the ability of emergency medical services to provide service by reporting healthcare facilities (EMS agencies, emergency facilities, hospital beds, other treatment sites, and shortage of medical equipment). The County EMS Coordinator and Emergency Manager should be notified.
- LHD's should collaborate on implementation of response to identified gaps.

- Collaborate with County Emergency Manager and EMS Coordinator in the implementation and use of alternate means for transporting non-critically ill patients to and between medical facilities.

State Health Department:

- Collaborate with County EMS Coordinator and EMS agencies regularly as the influenza pandemic unfolds.
- Monitor status of EMS resources through County EMS Coordinators.
- Assist in mobilization and allocation of requested resources through SEMO.
- Monitor for critical gaps in ability to provide emergency medical services.
- Provide regular updates for EMS staff on the current status of the pandemic.

J. Mass Fatality

Interpandemic and Pandemic Alert Periods

Funeral Firms:

- Standard operating procedures for funeral firms.
- Funeral Directors and cemetery personnel should be immunized to insure staffing.
- Conduct a meeting at the county level with all active funeral directors, firm mangers, medical examiners and coroners to discuss infection control guidelines for handling the event. Guidelines should include:
  - Infection control precautions
  - Personal protective equipment
  - Environmental disinfection
- Identify the surge capacity of the funeral firms in the county.
- Identify the surge capacity of the Article 28 facilities in the county.
- Funeral firms should develop an internal mass fatality plan.
- Identify other funeral service resources (i.e., mortuary science students and registered residents). Funeral firms should contact suppliers for products for:
  - Disinfection
  - Embalming
  - caskets/alternative containers
  - body bags
  - PPE

Local Health Departments:

- Every county must have a plan in place for mass fatality dispositions that are outside of the current/standard means of disposal.
- Conduct a meeting at the county level with all active funeral directors, firm managers, medical examiners and coroners to discuss infection control guidelines for handling the event. Guidelines should include:
  - Infection control precautions
  - Personal protective equipment
  - Environmental disinfection
- Work with local OEM to:
  - Identify the surge capacity of the funeral firms in the county.
  - Identify the surge capacity of the Article 28 facilities in the county.
  - Identify the surge capacity, if any, at the medical examiners/coroners office.
  - Identify a threshold for the number of deaths within the county that will be used to determine when different aspects of the plan will be implemented.
- LHDs continue to have ongoing communication with medical examiners/coroners and funeral directors.

State Health Department:

- Revisit guidelines, and revise and distribute with information specific to the virus.
- Contact the Division of Cemeteries (1-212-417-5713) to identify the surge capacity for cemeteries and to assess their labor availability and/or labor issues.
- Require registrars to develop an emergency staffing plan to address the anticipated surge in volume and registrar absenteeism associated with Pandemic Influenza. These plans should be shared with LHD and local OEMs.
- Require medical examiners and coroners to develop an emergency staffing plan to address the anticipated surge in volume and absenteeism associated with Pandemic Influenza. These plans should be shared with LHD and local OEMs.
- Work on streamlining the process and form for filing death certificates.
- Coordinate actions with New York City Vital Statistics.

Pandemic Period

Funeral Firms:

- Standard operating procedures for funeral firms. However, this may change depending on each Article 28 facility's morgue surge capacity. (metropolitan vs. suburban vs. rural) Report pandemic influenza cases or fatalities as requested by the LHD and NYSDOH.

- Personal protective equipment, body bag, fluid supplies, etc., should be assessed, monitored and re-ordered accordingly.
- Revisit the activities listed in the Interpandemic and Pandemic Alert Periods.
- Contact the local registrar on the status for staffing to handle the demand of increased filing of death certificates
- No bodies are to leave an Article 28 facility without having a signed death certificate.
- Contact casket companies to provide suitable containers.
- Contact persons contracted to dig mass grave.

Local Health Departments:

- Update providers regularly as the influenza pandemic unfolds.
- Refrigeration storage needs to be assessed per county and utilized as appropriate.
- Revisit the activities listed in Interpandemic and Pandemic Alert Periods.
- Communicate with the local funeral firms to assess the status of their current surge capacity.
- Based on the number of deaths, the surge capacity of funeral homes and cemeteries, and the availability of persons to oversee dispositions, the appropriate county official may direct mass dispositions.
- Collaborate with the County Medical Examiner and local Emergency Manager to instruct and inform hospitals on movement of deceased in the situation of mass fatality.

State Health Department:

- Communicate with the local funeral firms to assess the status of their current surge capacity.
- Contact the local registrars, coroners and medical examiners on the status of emergency staffing plans to handle the mass mortality and absenteeism associated with Pandemic Influenza.
- Consult with cemeteries as to the current status of the surge capacity.
- Based on the number of deaths, implement streamlined procedures/form associated with filing death certificates in 57 counties outside of New York City.
- Coordinate actions with New York City Vital Statistics.

K. Volunteers

<u>Interpandemic and Pandemic Alert Periods</u>

Healthcare Providers:

- Review pertinent legal authorities including medical volunteer licensure, liability, and compensation laws for in-state, out of state, and returning

retired and non-medical volunteers including Public Officers Law § 17 or § 18, if applicable (see Appendix 1-H).
- Encourage staff to enroll as volunteers on the state or local level
- Coordinate with LHD, local OEM and community partners to recruit and train volunteers.
- Establish internal mechanisms to identify assign and supervise volunteers.

Local Health Departments:
- Review pertinent legal authorities including medical volunteer licensure, liability, and compensation laws for in-state, out of state, and returning retired and non-medical volunteers.
- Continue volunteer recruitment programs for volunteers who agree to be called on pursuant to a state or county sponsored volunteer program in the event of an emergency should review the protections offered by Public Officers Law § 17 or § 18, if applicable or county resolution.
- Continue to recruit volunteers for the Medical Reserve Corps to link with local emergency management office to strengthen the public health infrastructure and improve emergency preparedness. If MRC does not exist in the county, a mechanism must be established to identify and recruit volunteers.
- Identify training needs of volunteer recruits.
- Provide adequate training to volunteers to maintain level of competency and preparedness.
- Ensure volunteers practice by demonstrating capabilities in drill training exercises.

State Health Department:
- Review pertinent legal authorities including medical volunteer licensure, liability, and compensation laws for in-state, out of state, and returning retired and non-medical volunteers.
- Collaborate with partners to establish criteria for alternate standards of care that would apply to volunteers and criteria for implementing alternate standards of care that will affect the scope of practice of volunteers in a pandemic.
- Volunteers who agree to be called on pursuant to a state or county sponsored volunteer program in the event of an emergency should review the protections offered by Public Officers Law § 17 or § 18, if applicable.
- Plans must be made to link with local emergency management office for activation of Medical Reserve Corps (MRC). If MRC does not exist in the county, a mechanism must be established to assist counties to identify and recruit volunteers.
- Maintain the Public Health Preparedness Volunteer Practitioner Database to assure adequate resources are available to respond to any public health emergency.

- Provide training guidelines.
- Maintain a state-based ESAR-VHP program to provide advanced registration and credentialing of health professionals who would augment a hospital or medical facility's staff during a declared emergency.

Pandemic Period

Healthcare Providers:

- Activate and deploy volunteers.
- If necessary, request additional volunteers from local OEM.
- Assign volunteers consistent with experience and training (including "just-in-time" training).
- Communicate and update health desk of local OEM regarding health care demands and the status of needs for additional health care volunteers.

Local Health Departments:

- Activate and deploy volunteers to assist in public health efforts (e.g., public health home care visits, isolation or quarantine visits).
- If necessary, request additional volunteer resources from local OEM

State Health Department:

- Communicate with SEMO for status of health care volunteer needed.
- Activate and deploy volunteers as demand for volunteers at the local level exceeds local resources in accordance with ICS.

L. Overarching Activities of the New York State Department of Health

Interpandemic and Pandemic Alert Periods

- Provide healthcare facilities/agencies the framework for planning.
- Work with provider organizations to provide technical and planning assistance.
- Identify contacts (names/titles) at each health care facility/agency that may have a role in responding to a pandemic. Multiple means of communication (phone, beeper, cell phone, e-mail, etc.) for contacting each person should be listed.
- Communicate information regarding pandemic influenza via the HPN.
- Conduct drills on the Health Emergency Reporting Data System (HERDS) and Communications Directory content and enforce regulations requiring completion and maintenance of Communications Directory information by facilities/agencies.

- Increase enrollment in and utilization of the HPN and assist facilities/agencies in their use of the HPN.
- Establish and lead discussions on altered standards of care and regulatory issues that may be required during a pandemic.
- Conduct periodic meetings or teleconferences with provider associations and Regional Resources Centers to provide planning updates and discuss issues.

Pandemic Period

- Advise the Commissioner of Health and all Emergency Preparedness System partners through the ICS on health facility/agency issues.
- Continue to provide information on the evolving pandemic situation via the HPN, alerts, teleconferences and/or meetings.
- Activate HERDS, partner with LHDs to review, analyze and evaluate data and make recommendations on resource allocation through the ICS at the state or local Office of Emergency Management (OEM).
- Work with facilities/agencies to approve increases in census above current licensure where indicated.
- Work with Centers for Medicare and Medicaid Services (CMS) to provide regulatory relief where indicated.
- Keep facilities/agencies apprised of any determinations made regarding altered standards of care (each change in standard of care will be the result of the evolving pandemic and will be a measured/proportionate response).
- Serve as liaison between healthcare provider types to foster better cooperation in emergency response.
- Provide technical assistance to facilities and agencies.

Home Health Agency Patient Classification Levels

LEVEL 1 - <u>High Priority</u>. Patients in this priority level need uninterrupted services. The patient must have care. In case of a disaster or emergency, every possible effort must be made to see this patient. The patient's condition is highly unstable and deterioration or inpatient admission is highly probable if the patient is not seen. Examples include patient requiring life sustaining equipment or medication, those needing highly skilled wound care, and unstable patients with no caregiver or informal support to provide care.

LEVEL 2 - <u>Moderate Priority</u>. Services for patients at this priority level may be postponed with telephone contact. A caregiver can provide basic care until the emergency situation improves. The patient's condition is somewhat unstable and requires care that should be provided that day but could be postponed without harm to the patient.

LEVEL 3 - <u>Low Priority</u>. The patient may be stable and has access to informal resources to help them. The patient can safely miss a scheduled visit with basic care provided safely by family or other informal support or by the patient personally.

Section 4: Infection Control

I. Overview

II. Background

III. Recommendations for Infection Control in Healthcare Settings

A. Basic infection control principles for preventing the spread of pandemic influenza
B. Management of infectious/potentially infectious patients
C. Occupational health issues for all pandemic periods
D. Occupational health issues for a local pandemic

IV. Specific Hospital Infection Control Guidance

A. Early detection and source control to prevent transmission of pandemic influenza during all pandemic periods
B. Early detection and source control during a local pandemic.
C. Infection control measures for hospitalized patients with known or suspected pandemic influenza for all periods
D. Cohorting in hospitals during all pandemic periods
E. Cohorting in hospitals during a local pandemic
F. Patient transport for patients with known or suspected pandemic influenza for all pandemic periods
G. Nosocomial outbreak management for all influenza pandemic periods
H. Visitor guidance for hospitals

V. Specific Long-Term Care facility (LTCF) Infection Control Guidance

A. Prevention or delay of pandemic influenza virus entry into the facility during all influenza pandemic periods
B. Prevention or delay of pandemic influenza virus entry into the facility during a state/regional influenza pandemic
C. Prevention or delay of pandemic influenza virus entry into the facility during a local influenza pandemic
D. Monitoring residents for pandemic influenza and infection control measures during all influenza pandemic periods
E. Monitoring residents for pandemic influenza and infection control measures during a local influenza pandemic
F. Cohorting for LTCFs – preplanning
G. Cohorting for LTCFs during a local influenza pandemic
H. Nosocomial outbreak management for all influenza pandemic periods
I. Visitor guidance for LTCFs

VI. Specific Adult Home Infection Control Guidance (under development)

VII. Specific Home Healthcare Infection Control Guidance

A. Home healthcare infection control preparedness planning for pandemic influenza
B. Infection control practices for home healthcare for all influenza pandemic periods
C. Infection control practices for home healthcare for a local influenza pandemic
D. Employee health surveillance for the home healthcare setting

VIII. Specific Prehospital Care (Emergency Medical Services) Infection Control Guidance

IX. Specific Infection Control Guidance for Outpatient Medical Offices

X. Specific Infection Control Guidance for Other Ambulatory Settings

XI. Care of Pandemic Influenza Patients in the Home

XII. Care of Pandemic Influenza Patients at Alternative Sites

XIII. Recommendations for Infection Control in Schools and Workplaces

XIV. Recommendations for Infection Control in Community Settings

Appendices:

4-A: Summary of Infection Control Recommendations for the Care of Patients with Pandemic Influenza
4-B: Respiratory Hygiene/Cough Etiquette

I. Overview

The intention of this document is to assist healthcare settings in the planning for pandemic influenza and to enhance infection control precautions according to the current global and local epidemiology of influenza. Covered in this section are basic infection control principles, infection control management of infectious patients, occupational health guidance, and setting specific guidance. Users of this document should also refer to the vaccine and antiviral, healthcare planning, and clinical guidelines sections of the NYSDOH Pandemic Influenza Plan.

Guidance for infection control and prevention for influenza is developed and updated yearly by the NYSDOH, and can be found on the NYSDOH Public Web site at http://www.health.state.ny.us/diseases/communicable/influenza/guidelines/index.htm or the NYSDOH Health Provider Network at https://commerce.health.state.ny.us/hpn/ctrldocs/alrtview/postings/doc050915_0.pdf . Influenza virus circulates yearly, with the season in the United States identified as October through May. Early identification of novel influenza strains is integral for early identification and intervention to prevent a global epidemic, or pandemic.

II. Background

Despite the prevalence of influenza every year, the amount of empirical data on influenza transmission is very limited. Based on observed epidemiological patterns, it is thought that influenza is primarily transmitted by large infectious respiratory droplets that are deposited on the oral, nasal or conjunctival mucosa of a susceptible host. Transmission via large-particle droplets requires close contact between the infectious host and susceptible persons. Special air handling and ventilation are not required to prevent droplet transmission, as large-particle droplets do not remain suspended in the air and generally travel only short distances (about three feet) through the air.

The significance of direct contact, indirect contact and airborne transmission has not been well established. Therefore, these modes of transmission remain theoretical in nature. Conservatively, these modes of transmission should be considered if host factors (i.e., diarrhea) or treatments (i.e., aerosolizing procedures) increase the theoretical potential risk of transmission.

The incubation period for routine seasonal influenza is 1 – 4 days, with an average of 2 days. The incubation period for novel types of influenza is currently unknown and may be longer. Therefore, the maximum interval between potential exposure and symptom onset for pandemic influenza is set conservatively at 10 days.

Influenza is contagious during the 24 hours before the onset of symptoms and during most of the symptomatic period. Children and persons with compromised immune

systems may shed the virus in the respiratory tract for a prolonged period (i.e., weeks to months).

Clinically, influenza-like illness (ILI) is described as acute onset of constitutional and respiratory signs and symptoms (e.g., fever of ≥ 100° F, myalgia, headache, malaise, cough, sore throat, and rhinitis). Among children, otitis media, nausea, and vomiting may also be present. The classic symptoms of ILI (e.g., fever) may not always be present in the elderly, children, and persons with altered immune status. The duration of illness typically is a few days, although cough and malaise may persist for weeks. Complications and hospitalizations from seasonal influenza are increased for children aged 0-23 months, adults ≥ 65 years, and persons with pre-existing medical conditions (e.g., cardiac or pulmonary disease) and include secondary bacterial pneumonia, or primary influenza viral pneumonia. See Section 5: Clinical Guidelines for additional information on the clinical presentation of influenza.

Because vaccine for influenza is developed using strain characterization from the previous influenza season, it can be assumed that vaccine will provide little if any protection from developing infection during a pandemic influenza outbreak. Given this, adherence to infection control principles to prevent transmission of influenza and initiation of antiviral medication for treatment and prophylaxis will be paramount to control the spread and reduce morbidity and mortality during an influenza pandemic.

The level of surveillance and infection control will depend on the global, regional, and local epidemiology of the influenza season. Implementing aggressive infection control strategies for containment (e.g., screening healthcare workers and visitors for illness, initiating cohorts of patients and staff, and establishing separate triage areas) may be indicated during a pandemic, specifically if a pandemic reaches the local area.

The specific characteristics of a new pandemic influenza virus, including virulence, transmissibility, incubation period, period of communicability, and drug susceptibility, will remain unknown until the pandemic gets under way. The NYSDOH will continue to work with their national and world public health partners (i.e., the Centers for Disease Control and Prevention and the World Health Organization) to assess differences in any of these aspects and to revise infection control guidance as appropriate.

III. Recommendations for Infection Control in Healthcare Settings

The following recommendations for infection control are applicable throughout the pandemic periods that have been defined by the World Health Organization (See Introduction), and have been used successfully by facilities for the control of seasonal epidemic influenza. The key to successfully controlling transmission of influenza (and other communicable respiratory infections) is the early identification of potentially infectious patients, and the immediate implementation of control measures for containment.

A. Basic infection control principles for preventing the spread of pandemic influenza for all pandemic periods

- Limit exposure to infectious/potentially infectious persons (i.e., febrile respiratory symptoms).
  - Identify potentially infectious individuals and physically isolate if possible/indicated for the setting.
  - Promote spatial separation in common areas (i.e., maintain at least 3 feet from symptomatic persons).
- Protect healthcare workers from exposure to the influenza virus while delivering care.
  - Wear a surgical or procedure mask for close contact with infectious patients (i.e., within 3 feet).
  - Wear personal protective equipment (i.e., gloves, gowns, mask and eye protection) to prevent contact with respiratory secretions and skin, mucous membranes and clothing (i.e., standard precautions).
  - Perform hand hygiene after contact with infectious patients or their immediate environment. Reinforce compliance with hand hygiene by:
    - Educating on the importance of hand hygiene for the prevention of transmission of infectious agents;
    - Providing easy access to hand hygiene products at the point of care.
    - See CDC *Guideline for Hand Hygiene in Health Care Settings* (http://www.cdc.gov/handhygiene/) for more details on guidance and suggestions for improving adherence.
  - Educate healthcare workers to avoid touching their eyes, nose or mouth with contaminated hands (gloved or ungloved) while delivering care and until they perform hand hygiene.
  - Food and drink should not be consumed by healthcare workers in patient care areas where contamination is likely.
- Contain infectious respiratory secretions
  - Implement the use of respiratory hygiene/cough etiquette
  - Promote the use of masks by symptomatic persons in common areas (e.g., waiting areas) or when being transported (e.g., in emergency vehicles).
- Assure adequate cleaning of the patient care environment by:
  - Assessing the protocols used by your facility for daily and discharge cleaning to assure adequacy. They should minimally include:
    - Daily cleaning of:
      - ✓ horizontal surfaces (e.g., over-bed table, night stand).
      - ✓ frequently touched surfaces (e.g., bed rails, phone);
      - ✓ lavatory surfaces.
    - Discharge cleaning of:
      - ✓ surfaces described above.
      - ✓ visibly soiled vertical surfaces (e.g., walls, curtain dividers).
      - ✓ frequently touched surfaces such as light switches and door knobs.

- Assess compliance with daily and discharge cleaning by identifying a person(s) in the facility to perform daily rounds to inspect cleanliness.
- Assuring the product used for daily routine and discharge cleaning of patient areas is an Environmental Protection Agency (EPA) registered low- or intermediate-level disinfectant and it is used as per the manufacturer's instructions.
- See CDC *Guideline for Environmental Control in Health-Care Facilities,* 2003 (http://cdc.gov/ncidod/hip/enviro/guide.htm) for specific guidance for maintaining a safe environment for patients.

B. Management of infectious/potentially infectious patients

Respiratory hygiene/cough etiquette detailed below should be utilized at all times, year-round, in all healthcare settings and points of entry into the healthcare delivery system (e.g., emergency departments, admissions department, outpatient clinics, physician offices). Key points for successful implementation of respiratory hygiene/cough etiquette include:

- Early detection of patients with respiratory symptoms can take place at triage areas, reception areas or during the scheduling of appointments.
- Health care providers and non-licensed personnel will play an important role in early identification and should all be familiar with and incorporate respiratory hygiene/cough etiquette into their practice.

Respiratory Hygiene/Cough Etiquette

- Provide surgical masks to all patients with symptoms of a respiratory illness. Provide instructions on the proper use and disposal of masks.
- For patients who cannot wear a surgical mask, provide tissues and instructions on when to use them (i.e., when coughing, sneezing, or controlling nasal secretions), how and where to dispose of them, and the importance of hand hygiene after handling this material.
- Provide hand hygiene materials in waiting room and common areas, and encourage patients with respiratory symptoms to perform hand hygiene.
- Designate an area in waiting rooms where patients with respiratory symptoms can be segregated (ideally by at least 3 feet) from other patients.
- Place patients with respiratory symptoms in a private room or cubicle as soon as possible for further evaluation.
- Implement use of surgical or procedure masks and gloves by healthcare personnel during the evaluation of patients with respiratory symptoms.
- Consider the installation of plexiglass barriers at the point of triage or registration to protect healthcare personnel from contact with respiratory droplets.
- If no barriers are present, instruct registration and triage staff to remain at least 3 feet from unmasked patients and perform frequent hand hygiene.

Droplet precautions and patient placement

Patients with known or suspected pandemic influenza should be placed on droplet precautions for the duration of their illness, and a minimum of 5 days from the onset of symptoms (*note: the infectious period is under discussion with the CDC*). Refer to the following CDC Website for a detailed explanation of droplet precautions: (http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html), which include:

- Donning a surgical or procedural mask upon room entry. The practice of donning a mask upon room entry (as opposed to within 3 feet) may increase compliance and prevent unnecessary exposures.
- Discard the mask after leaving the patient room. If the healthcare worker is attending multiple patients in the same room (e.g., in a cohort situation), the same mask may be utilized until the healthcare worker leaves the room.
- Hand hygiene must be performed after each patient encounter (see CDC Hand Hygiene Guidelines: http://www.cdc.gov/ncidod/dhqp/gl_handhygiene.html).
- Place patient in a private room, if feasible. Patients may be cohorted if necessary. As patients may be infected with different strains of influenza virus or other infectious agents, care must be taken to prevent transmission within the cohort (i.e., spatial separation of at least 3 feet). See setting-specific cohorting sections of this document for recommendations on establishing and implementing cohorts in the hospital and long-term care settings.

Aerosol-generating procedures for patients with pandemic influenza

Aerosol-generating procedures (e.g., endotracheal intubation/extubation, suctioning, nebulizer treatments, and bronchoscopy) may increase the potential for dissemination of droplet nuclei in the immediate vicinity of the patient. Therefore, healthcare workers should wear the following personal protective equipment (PPE) when performing aerosol-generating procedures on patients with suspected, or known to be infected with, pandemic influenza:

- Gloves
- Gown
- Face/eye protection
- N95 respirator or other appropriate particulate respirator
    - Respirators should be used within the context of a respiratory protection program that includes fit-testing, medical clearance, and training.

Additional work practice controls may further reduce transmission during an aerosol-generating procedure, and should be implemented for patients with suspected or confirmed pandemic influenza:

- Limit the numbers of HCWs present during the procedure to essential staff only.
- Utilize closed systems for suctioning to prevent splattering/spraying of potentially infectious secretions.

- If the procedure is performed outside of the patient room (i.e., bronchoscopy) perform as last case of the day and transfer to procedure room immediately before the procedure (to prevent possible exposures while waiting).

Room placement

The use of an Airborne Infection Isolation Room (AIIR) for patients known or suspected to be infected with pandemic influenza who are undergoing aerosol-generating procedures should be considered, if feasible. An AIIR is highly recommended during bronchoscopy procedures and for patients with frequent need for aerosol-generating procedures (e.g., frequent nebulizer treatments, frequent need for endotracheal suctioning).

Contact precautions

There is insufficient data to determine the proportion of influenza transmission that is attributable to direct or indirect contact. If the patient has diarrhea, contact precautions should be added.
Refer to the following CDC Website for a detailed explanation of contact precautions: (http://www.cdc.gov/ncidod/dhqp/gl_isolation_contact.html)

C. Occupational health issues for all pandemic periods

The following surveillance activities are applicable throughout the pandemic periods. Once a pandemic has reached a community, healthcare facilities must increase active surveillance and monitoring of healthcare personnel (including non-direct patient care staff). Healthcare worker shortages due to the pandemic may also necessitate utilizing ill healthcare workers who are well enough to administer patient care.

- Designate those responsible for the monitoring of employee health concerns in regard to respiratory infections. The most appropriate entity would be an employee health /occupational health service. If such a service is not available, then a medical director, infection control professional, or other qualified/trained person should be designated.
- Instruct all healthcare personnel to report influenza-like illness to the facility designate immediately.
- If onset of employee illness occurs while working, instruct the healthcare personnel to don a surgical mask and report to the designated area.
- If onset of illness occurs at home, instruct the employee to not report to work until symptoms resolve.
- Investigate any clusters of influenza-like illness identified in healthcare personnel and report to the NYSDOH Regional Epidemiology Program (see setting-specific nosocomial outbreak management for all influenza pandemic periods sections of this document).
- Facilities should have the capacity to obtain patient care assignments of the cohorts for any designated time period for the purpose of an epidemiological investigation.

- Personnel at high risk for complications of pandemic influenza (e.g., pregnant women, immunocompromised persons) should be informed of their medical risk and offered an alternate work assignment away from influenza-patient care (e.g., care for patients on the well, non-exposed cohort).
- Closely monitor healthcare personnel with direct contact with influenza patients for early identification of secondary transmission to contain local spread. The following recommendations may be helpful to operationalize:
  - Limit patient contact to essential staff.
  - Eliminate or minimize floating
  - Consider a daily sign in sheet for patient contact.
  - Have staff complete a daily self-assessment to document symptoms. A self evaluation tool can be utilized for this purpose. The tool should provide guidance for symptomatic individuals (i.e., how, when and whom to report symptoms to).
  - Report symptoms consistent with pandemic influenza to designated person.
- Administer vaccine to healthcare personnel when available. Refer to vaccine section of the NYSDOH Pandemic Influenza Plan for prioritization of vaccine for healthcare personnel.
- Administer antivirals for treatment of ill healthcare personnel and for prophylaxis of exposed healthcare personnel as per the antiviral section of the NYSDOH Pandemic Influenza Plan.

D. Occupational health for a local influenza pandemic

Maintain surveillance activities as above, plus the following:

- All personnel (direct patient care and non-direct patient care) should be actively monitored daily for fever and respiratory symptoms. All those with respiratory symptoms and/or fever $\geq$ 100º F should be furloughed and evaluated.
- Personnel who have recovered from pandemic influenza should develop antibody against future infection with the same virus. Therefore, these personnel should be prioritized for the care of patients with active pandemic influenza. These personnel would also be appropriate to care for patients who are at serious risk for complications of influenza.
- Regardless of a healthcare workers immune status to pandemic influenza, they should adhere to infection control recommendations to prevent exposure to themselves and transmission to other patients.
- If severe staffing shortages due to a pandemic necessitate staff to work while ill, they should be:
  - given antiviral treatment,
  - instructed to wear a surgical mask, and
  - assigned to the ill cohort.

IV. Specific Hospital Infection Control Guidance

The following guidance is intended to address setting-specific infection control issues.

A. Early detection and source control to prevent transmission of pandemic influenza during all pandemic periods

- Place signs (bi- or multilingual depending on facility's patient population) at all entrances and strategic locations detailing:
    - The signs and symptoms of influenza and any current epidemiological risk factors for a pandemic influenza strain, if identified.
    - Visitors with ILI should not visit the facility.
    - Persons entering the hospital seeking care for respiratory symptoms should immediately inform the receptionist/triage personnel of their symptoms and follow respiratory hygiene/cough etiquette.
- Early detection of patients with respiratory symptoms can take place at triage areas, reception areas or during the scheduling of appointments.
    - Identify and train those personnel who are first points of contact to screen patients for respiratory 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 (i.e., respiratory hygiene/cough etiquette).
- Respiratory hygiene/cough etiquette should be utilized at all points of entry into the healthcare delivery system:
    - Emergency departments
    - Admissions department
    - Outpatient clinics
    - Physician offices
- Health care providers and non-licensed personnel will play an important role in early identification and should all be familiar with and incorporate respiratory hygiene/cough etiquette into their practice.
- Communicate to triage staff on a regular basis the status of the pandemic. The frequency of updates will depend on the epidemiology of the pandemic and the location of your area (e.g., areas that border other states/countries, and large urban areas, may need more frequent updates due to increased tourism and world travel).
- Screen all patients presenting with respiratory illness for epidemiological links to areas affected by the pandemic;
    - Travel to an affected area within 10 days of onset of illness;
    - Recent contact with an ill person known to have had recent travel to an affected area.
    - Prioritize those meeting the above criteria to be placed in a private exam room on droplet precautions;

- Notify the local health department of any persons meeting the above criteria.

B. Early detection and source control during a local pandemic

- Screen all patients and visitors for respiratory illness at all points of entry into the healthcare system.
- Screening for epidemiological links is not indicated, since the pandemic is occurring locally.
- Develop a plan to segregate patients with respiratory illness presenting to the emergency department from patients without respiratory illness:
  - Include a plan for numbers of patients that exceed normal capacity of the emergency department.
  - Consider a separate triage area during the local pandemic period. This could be the urgent care center or a temporary triage center (e.g., trailers or other temporary structure, or nearby outpatient clinics).
  - Consider a telephone triage system to adequately direct those with less critical needs away from the emergency department.
- Mask all family members and visitors accompanying patients with influenza-like illness, as they may be incubating disease.
- Consider the following infection control issues when triage or admission capacity is exceeded, leading the facility to initiate non-traditional sites for the care of patients (e.g., cafeterias, conference rooms, etc.):
  - Preventing the flow of patients with respiratory illness from contact with non-symptomatic patients.
  - Provide hand hygiene products at the point of care and in waiting areas.
  - Ensuring adequate supplies of personal protective equipment at the point of care.
  - Adequate disposal of infectious wastes.
  - Provide trained ancillary staff to support the temporary structure (e.g., housekeeping).

- Personal protective equipment for healthcare workers and ancillary staff working in pandemic influenza triage area:
  - Surgical masks → are to be worn when entering the triage area and changed when moist with condensation or soiled;
  - Gloves → as per standard precautions
  - Gown → as per standard precautions
  - Avoid hand (regardless of glove use) to mucous membrane contact (eyes, nose, mouth, etc.)
  - Contact precautions (i.e., gloves, gown, and dedicated equipment) should be implemented if the patient has diarrhea.

C. Infection control measures for hospitalized patients with known or suspected pandemic influenza for all periods

Patient admission:

- Limit admission of influenza patients to those with severe complications of influenza who cannot be cared for outside of the hospital setting.
- Place patients with known or suspected pandemic influenza on droplet precautions for the duration of illness (for a minimum of 5 days after onset), or until etiology confirmed as not communicable (*note: the infectious period is under discussion with the CDC*).
- Admit patients to a single patient room. If numbers of cases exceeds private room availability, attempt to cohort patients (see cohorting section below).
- Consider an AIIR for patients requiring frequent aerosol-generating procedures (e.g., frequent deep tracheal suctioning).

D. Cohorting in the hospital setting during all pandemic periods

Cohorting in the hospital setting is indicated when the numbers of patients admitted with influenza-like illness exceeds the facility's capacity to isolate patients given their routine means (i.e., lack of sufficient private rooms), or if there was an uncontrolled nosocomial outbreak (rare in acute care settings). Utilize the following measures to operationalize cohorting in a hospital setting:

- Identify an area that the facility could utilize for cohorting patients with pandemic influenza. Ideally, this area should be comprised of single patient rooms. If this is not feasible, identify an area that provides the best spatial separation for patients. Respiratory viruses (e.g., non-pandemic influenza, respiratory syncytial virus, parainfluenza) or other infectious agents may be circulating concurrently in the community. Therefore, cohorting of patients should be prioritized as follows:
    - Patients with laboratory-confirmed pandemic influenza.
    - Suspect pandemic influenza patients with a well established epidemiological link to a known case (e.g., household member of a case).
    - Patients with influenza-like illness (ILI) without a well-established epidemiological link to a known pandemic influenza case.
- Asymptomatic contacts (i.e., roommates of a pandemic influenza case) should be monitored closely, and if possible, maintained in a private room for the entire incubation period and placed on droplet precautions.
- Reinforce adherence to infection control practices (i.e., hand hygiene, standard precautions) to prevent the transmission of influenza and other healthcare associated infections within the cohort.
- Personnel (clinical and non-clinical) assigned to cohort unit for pandemic influenza patients should not float to other patient care areas.
- Limit the number of personnel assigned to the pandemic influenza cohort.
- Facilities should have the capacity to obtain patient care assignments of the cohorts for any designated time period for the purpose of an epidemiological investigation.

E. Cohorting in hospitals during a local pandemic.

- Because of the high patient volume anticipated in a pandemic, cohorting should be implemented early in the course of a local pandemic.
- Laboratory testing for confirmation is likely to be limited and/or not timely during a local pandemic, in which case cohorting should be based on having symptoms consistent with pandemic influenza.
- Personnel who have recovered from pandemic influenza should be prioritized for assignment to the cohort of patients with active pandemic influenza.
- If staffing crisis necessitates that HCWs work while ill, they should be assigned to the ill cohort of patients (See III.D, Occupational health issues for a local pandemic).

F. Patient transport for patients with known or suspected pandemic influenza

- Limit patient movement and transport outside the isolation area to medically necessary purposes.
- Consider having portable X-ray equipment available in areas designated to the pandemic influenza cohort unit.
- If transport or movement is necessary, ensure that the patient wears a surgical or procedure mask. If a mask cannot be tolerated, provide the most practical way to prevent exposures to other healthcare workers, patients, and or visitors. Some suggestions include:
    - Ensure all healthcare workers transporting the patient don a surgical or procedural mask for transport.
    - Provide tissues for patient to contain respiratory secretions and encourage respiratory hygiene/cough etiquette.
    - Identify a transport route that is restricted to visitors and non-accompanied patients.
    - Use an oxygen mask rather than nasal cannula for transport, if the patient requires supplemental oxygen.

G. Nosocomial influenza outbreak management for all influenza pandemic periods

Nosocomial outbreaks of influenza most often occur in residential facilities, and are rarely reported in acute care facilities. The risk of an outbreak of influenza would increase if an influenza pandemic affected a local community for the following reasons:

- Use of non-traditional settings increases the difficulty in adhering to infection control (e.g., spacing of patients, access to hand hygiene and PPE).
- Staff may become exposed and may transmit infection while incubating or ill.
- During a pandemic, a severe staffing crisis may necessitate ill workers to work while ill.

The following should be done to identify and report an influenza outbreak in a hospital setting:

- Perform syndromic surveillance (patients and staff) for respiratory illness on all units to identify any clusters of influenza-like illness.
- If a cluster of ILI is identified in an Article 28 facility (i.e., hospitals, nursing homes and diagnostic and treatment centers) and other state facilities (e.g., Department of Corrections), report to the NYSDOH, Bureau of Communicable Disease Control, Regional Epidemiology Program by:
    - Electronically reporting on the Nosocomial Outbreak Reporting Application (NORA) on the following NYSDOH Health Provider Network (HPN)Website link: https://commerce.health.state.ny.us/hpn/infecontrol/forms.html ; OR
    - Faxing an Infection Control (Nosocomial) Report Form (DOH form 4018) to 518-408-1745 (diagnostic and treatment centers and state facilities do not have access to NORA and are required to fax their report).
- If a cluster of ILI is identified in a non-Article 28 facility or a community setting, report to the local health department in the county where the facility is located.

If limited transmission is detected (e.g., limited to one unit, or two units with an established epidemiological link), appropriate control measures include:

- Establish cohorts of patients and staff (see IV.D and IV.E of this section).
- All personnel and visitors should wear a surgical mask when entering the ill cohorting area. Masks are to be changed when moist with condensation or visibly soiled.
- Utilize droplet precautions for patients exposed to pandemic influenza.
- Vaccinate unvaccinated staff and patients if vaccine is available (see Section 6).
- Provide antivirals for treatment of patients with influenza-like illness if antivirals are available (see Section 7).
- Provide antivirals for prophylaxis for both patients and staff of affected units if antivirals are available (see Section 7).
- Ill staff should not report to work unless needed for a critical staffing shortage. Ill staff needed for work should be placed on antiviral treatment and assigned to the ill cohort (see parts III.C and III.D of this section).
- Restrict new admissions (except for other pandemic influenza patients) to the affected unit(s).
- Restrict visitors to the affected unit(s) to those who are essential for patient care and support.
- Designate personnel who have received enhanced infection control training to screen/triage patients, visitors and employees and perform direct patient care for patients with known or suspected pandemic influenza.
- Designate specific influenza patient-flow routes that minimize contact with employees, visitors and other patients.

If widespread transmission occurs, the following additional control measures should be implemented:

- Restrict all non-essential persons from entering the facility.
- Restrict admissions not related to pandemic influenza.
- Cancel elective surgeries.

H. Visitor guidance for hospitals

A visitor is anyone entering a healthcare facility site to visit a patient or staff member, attend a meeting or event, or accompanying an individual accessing healthcare treatment, assessment, examination or investigation. Visitors have a responsibility to behave in a manner that does not put others at risk, and to respond to staff's requests and hospital regulations for the protection of themselves and others.

Guidance for the notification, surveillance and/or restriction of visitors is dependant on the level of influenza activity on the world, national, state and local levels. Healthcare facilities should prepare for each phase of the pandemic to assure they can have systems in place quickly in the event access to the facility would need to be monitored and/or restricted.

Policy development/review

All healthcare facilities should review or develop visitation policies to assure that visitors, patients, healthcare workers and the general public are protected from the transmission of communicable diseases. The following areas should be covered in the aforementioned policy:

- Delineation of where visiting is allowed and visiting hours.
- Precautions a visitor must take if visiting a patient in a high-risk area or if being trained to assist in providing care.
- Identification and exclusion of visitors with communicable diseases, including pandemic influenza.
    - The facility may choose to note exclusions to this policy (e.g., terminally ill family member). All visitors who are ill and meet the facility's exclusion criteria must be compliant with respiratory hygiene/cough etiquette, including wearing a surgical or procedure mask.
- Instruct visitors to practice hand hygiene.
- Post signage in strategic locations in the facility and at entrances enforcing key points of your visitor policy (e.g., hand hygiene, respiratory hygiene/cough etiquette, exclusion of visitors with communicable diseases).

Pandemic influenza identified locally

- Visitors should be limited to reduce the likelihood of transmission of influenza among visitors, patients and healthcare workers (e.g., one per day).
- Visitors should optimally be visiting only one patient. Minimally, visitors visiting the pandemic influenza cohort should be restricted from visiting other patient care units.
- Actively screen and restrict visitors with influenza-like illness.

- If the facility plans to utilize visitors for care of patients, provide the visitors with infection control training needed for the level of tasks performed. Simple handouts and videos can be utilized for this task.
- Visitors entering the influenza triage area, influenza cohort and who accompany patients with influenza-like illness should be instructed in hand hygiene, the appropriate use of masks, and restricted to contact to the individual patient for whom they are attending.

V. Specific Long-Term Care Facility (LTCF) Infection Control Guidance

Residents of LTCFs are a vulnerable population for the acquisition and development of complications of influenza due to advanced age, co-morbidities, regular close contact with other at-risk persons, and decreased response to the influenza vaccine. LTCFs are often an epidemiological microcosm of their community, with outbreaks of influenza being identified before or concurrently with community case identification of circulating influenza. Personnel, visitors, or resident/patient transfers from another LTCF or hospital can introduce influenza into a LTCF. Once influenza is introduced into a facility, it is often very difficult to control transmission.

Pandemic influenza presents additional challenges. A pandemic may occur any time of the year. There would be an increased susceptibility in the community, further impacting on potential exposures in the LTCF setting. Additionally, acute medical management of residents in the LTCF setting should be anticipated and planned for, as hospitals may be unable to meet all of the medical needs of the community. All of these factors would pose additional challenges and unusual infection prevention concerns for the LTCF setting (e.g., device-related infections, multi-drug resistant organisms) that are more commonly seen in the acute care setting.

The following guidance is intended to address setting-specific infection control issues in the LTCF setting.

A. Prevention or delay of pandemic influenza virus entry into the facility during all influenza pandemic periods

- Place signs (bi or multilingual depending on facility's resident population) at all entrances and strategic locations detailing:
  - The signs and symptoms of influenza and any current epidemiological risk factors for a pandemic influenza strain, if identified.
  - Visitors with ILI should not visit the facility.
- Designate a person(s) to routinely access (at least weekly during routine epidemic influenza season) the NYSDOH Influenza Activity Surveillance Reports on the NYSDOH Public Website at http://www.health.state.ny.us/diseases/communicable/influenza/surveillance.htm to obtain current information on the epidemiology of epidemic and pandemic influenza. Communicate this information to all clinical staff and direct care providers.

- Enhance visitor restrictions by actively screening visitors if there is an increase in local influenza illness in the community (i.e., nosocomial reports of influenza in your county/bordering counties, laboratory-confirmed influenza reported in your county).
- Implement respiratory hygiene/cough etiquette at all entry points into the facility and in common areas.
- Perform careful screening for respiratory infections of residents being admitted to the LTCF. Admit residents with a respiratory infection of unknown etiology on droplet precautions, and to a private room, if feasible.
- See occupational health parts (III.C and D) of this section for personnel surveillance and restrictions.

B. Prevention or delay of pandemic influenza virus entry into the facility during a state/regional pandemic

In addition to the measures delineated above, implement the following recommendations:

- Assign personnel to verbally and visually screen visitors for respiratory illness and actively enforce visitor restrictions.
- Consider restriction of those visitors who have had recent travel (within 10 days) to areas affected by the pandemic, as they may be incubating illness.

C. Prevention or delay of influenza virus entry into the facility during a local pandemic

During a local pandemic, the facility should have tight control over persons entering and should be limited to essential staff only. The following additional measures should be incorporated:

- Personnel monitoring entry into the facility should wear a surgical or procedural mask for this task. Masks are to be changed when moist with condensation or visibly soiled.
- Limit visitors to persons who are needed to perform resident care, should a staffing shortage necessitate (see part V. J of this section titled, Visitor Guidance for LTCFs).
- Carefully screen new admissions for symptoms of, and exposure to, pandemic influenza.
- Perform resident placement of new admissions with the following considerations:
    - Residents with respiratory symptoms who require admission to the facility (e.g., acute care facilities beyond patient capacity, persons in the community in need of extended care, etc.) should be admitted preferably to a private room on droplet precautions for the duration of illness, and for a minimum of 5 days (*note: the infectious period is under discussion with the CDC*). If a private room is not available, see Cohorting for LTCFs during a local pandemic (see part V.H. of this section).
    - Residents with exposure to pandemic influenza (e.g., stay in a hospital with an identified pandemic influenza outbreak, household exposure) that require admission to the facility should be admitted to a private room on

droplet precautions for the duration of the pandemic influenza strain incubation period. If a private room is not available, see part V.H. of this section, Cohorting for LTCFs during a local pandemic.

- New admissions from the community or a hospital with no known exposure should be admitted into the general resident population with caution:
  - Perform careful screening for respiratory symptoms for the entire incubation period.
  - Establish cohorts and place all new admissions on droplet precautions for entire incubation period if widespread pandemic influenza is identified in the local community (see part V.H. of this section).

D. Monitoring residents for pandemic influenza and infection control measures during all influenza pandemic periods

- Follow the NYSDOH guidance Influenza Prevention and Control for influenza prevention and control measures during epidemic (non-pandemic) influenza season, located at: http://www.health.state.ny.us/nysdoh/flu/2005-2006_guidelines/index.htm
- Follow the recommendations for infection control in healthcare settings (part III of this section).
- If pandemic influenza is suspected, implement droplet precautions for the resident and roommates, pending confirmation of pandemic virus infection. Roommates of the suspected case should not be separated or moved out unless medically necessary. If the suspected pandemic influenza case is confirmed, roommates should be treated as exposed cohorts (see parts V. F, V.G, and V.H. of this section).

E. Monitoring residents for pandemic influenza and instituting appropriate infection control measures during a local pandemic

- Suspend all group activities (e.g., close the dining room, activity centers/gyms, etc.) during the local pandemic.
- Administer traditional group therapies (e.g., physical, occupational and recreational therapy) individually to residents or within the cohorts.
- Curtail floating of direct care staff as feasible.

F. Cohorting for LTCFs: pre-planning

Pre-planning for how and when cohorts should be established in the LTCF is integral to successfully attaining the goal of minimizing transmission by utilizing cohorts. Cohorting in LTCFs should be done with great care, because moving residents who may have been exposed will further complicate control measures. Cohorting is a special circumstance in the LTCF that may be helpful for safely admitting new residents to the facility during a local pandemic, when exposure may be uncertain. The following issues

should be addressed when developing a facility-specific cohorting plan for the LTCF setting:

- Assess units that can easily be physically segregated from the rest of the facility, if possible. Private resident rooms are preferred for an ill or exposed cohort, if feasible.
- Assess how residents would be able to perform activities of daily living in a cohort (e.g., eating in rooms, bathing in only cohorted facilities, therapies to be provided in rooms or in a cohort).
- Assess the numbers of direct patient care and essential ancillary staff that would need to be available to staff the cohort.

G. Cohorting for LTCFs during a local pandemic

- Cohorting can be a considered control measure for a local pandemic, with cohorts (symptomatic and asymptomatic) established for **all new admissions** into the facility for the duration of incubation period, or illness, if symptomatic. These cohorts should be established very early in the local pandemic.
- Personnel (clinical and non-clinical) assigned to the cohorts for influenza should not float to other resident care areas.
- Limit the number of personnel assigned to the pandemic influenza cohort. Facilities should have the capacity to obtain resident care assignments of the cohorts for any designated time period for the purpose of an epidemiological investigation.
- Reinforce adherence to infection control practices (i.e., hand hygiene, standard precautions) to prevent the transmission of healthcare associated infections within the cohort.
- Laboratory testing for confirmation is likely to be limited and/or not timely during a local pandemic, in which case cohorting should be based on having symptoms consistent with pandemic influenza.
- Personnel who have recovered from pandemic influenza should be prioritized for the cohort of residents with active known or suspect pandemic influenza.
- If staffing crisis necessitates that HCWs work while ill, they should be placed on antiviral medication and assigned to the ill cohort of residents (see parts III.C and D of this section).

H. Nosocomial outbreak management for all influenza pandemic periods

Nosocomial outbreaks of influenza most often occur in residential facilities, and are rarely reported in acute care facilities. The risk of an outbreak of influenza would increase if pandemic influenza affected a local community for the following reasons:

- Staff may become exposed in the community or in the facility, and may transmit infection while incubating or ill;
- During a pandemic, a severe staffing crisis may necessitate ill workers to work while ill.

The following should be done to identify and control an influenza outbreak in a LTCF setting:

- Perform syndromic surveillance for respiratory illness on all units to identify any clusters of influenza-like illness.
- If a cluster of ILI is identified, report to the NYSDOH, Bureau of Communicable Disease Control, Regional Epidemiology Program, by:
    - Electronically reporting on the Nosocomial Outbreak Reporting Application (NORA) on the following Website: https://commerce.health.state.ny.us/hpn/infecontrol/forms.html
      OR
    - Faxing an Infection Control (Nosocomial) Report Form (DOH form 4018) to 518-408-1745.
- Prevent floating of staff.
- Restrict group activities.
- Restrict visitors.
- Droplet precautions are to be utilized for all patients with confirmed influenza or influenza-like illness for the duration of illness, and a minimum of 5 days (*note: the infectious period is under discussion with the CDC*).
- Vaccinate unvaccinated staff and residents, if vaccine available (see Section 6 for vaccine prioritization).
- Provide antivirals for treatment of residents with influenza-like illness, if antivirals are available (see Section 7 for antiviral prioritization).
- Provide prophylaxis for both residents and staff of entire facility, if sufficient supply. If supply limited, administer antiviral prophylaxis to affected units.
- Ill staff should not report to work.
- If severe staffing shortages due to a pandemic necessitate staff to work while ill, they should be:
    - given antiviral treatment;
    - instructed to wear a surgical mask; and
    - assigned to the ill cohort.

I. Visitor guidance for LTCFs

A visitor is anyone entering a health care facility to visit a resident or staff member, attend a meeting or event, or accompanying an individual accessing health care treatment, assessment, examination or investigation. Visitors have a responsibility to behave in a manner that does not put others at risk, and to respond to staff's requests and facility regulations for the protection of themselves and others.

Guidance for the notification, surveillance and/or restriction of visitors is dependent on the level of influenza activity on the world, national, state and local levels. Healthcare facilities should prepare for each level of a pandemic to assure they can have systems in place quickly in the event access to the facility would need to be monitored and/or restricted.

Policy development/review

All healthcare facilities should review or develop visitation policies to assure that visitors, residents, healthcare workers and the general public are protected from the transmission of communicable diseases. The following areas should be covered in the aforementioned policy:

- Delineation of where visiting is allowed and visiting hours.
- Precautions a visitor must take if visiting a resident in a high-risk area or if being trained to assist in providing care.
- Identification and exclusion of visitors with communicable diseases.
- Instructing visitors to practice hand hygiene.
- Reinforcing respiratory hygiene/cough etiquette for those visitors with an upper respiratory infection who must enter the facility (limited to critical situations only).
- The posting of signage in strategic locations in the facility and at entrances enforcing key points of your visitor policy (e.g., hand hygiene, respiratory hygiene/cough etiquette, exclusion of visitors with communicable diseases).

Preplanning – facility protocols and procedures relating to visitors

The level of intensity for the identification and screening of visitors will be dependent on the influenza activity identified worldwide, nationwide, statewide and/or locally. Facilities will need to proactively devise a plan to screen visitors for symptoms of respiratory infections. Family members and visitors may also be needed to assist facility staff members in delivering care during a severe staffing shortage due to the pandemic. Since the organizational and physical structure of each facility varies, facilities will need to devise their own plan. This plan should minimally include the following elements:

- Identify high risk units where patients are at the most risk for developing severe complications of influenza (e.g., frail elderly and HIV units).
- Identify what tasks could be delineated to visitors.
- Identify a plan to provide education to visitors to assist in patient care if staffing necessitates.

Pandemic influenza identified locally

- To prevent introduction of influenza into the facility by the community, the facility should limit visitors to a few select persons who can act as advocates or caregivers for each resident. These visitors should be:
  - Screened for respiratory illness
  - Provided infection control training to prevent the transmission of influenza and as necessary for the level of tasks performed. Simple handouts and videos can be utilized for this task.
- If household illness is identified among the selected advocate/caregiver's home, then they should refrain from visiting until one incubation period has passed and they are free of symptoms.
- Children should be restricted from visiting the long-term care facility because they have increased potential for asymptomatic shedding of viral respiratory illnesses.

VI. Specific Adult Home Infection Control Guidance
(under development)

VII. Specific Home Healthcare Infection Control Guidance

Home healthcare personnel face considerable challenges when attempting to implement standard infection control practices in the home setting. Unlike hospitals and LTCFs, home care settings often lack access to sufficient hand hygiene facilities, space is often limited, and environmental cleanliness is not under the control of the care provider. Thus the home is an uncontrolled and unpredictable environment in which to provide care. Given this challenge, those working in the home setting must be prepared for the most hazardous infection control setting, and take appropriate action to prevent transmission of infection to themselves and to other patients they subsequently care for.

A. Home healthcare infection control preparedness planning for pandemic influenza

Home healthcare agencies can expect an increased demand for services in the event of an influenza pandemic. In addition to the routine case load, more patients will require services, hospitals may be restricting admissions to the most acutely ill individuals, private practice settings and emergency departments may be overwhelmed, and moderate to low risk individuals may need home health care and support services. Given this premise, more acutely ill patients may be discharged to home, yielding a large home health population base at greater risk of infections. Home healthcare staff should be prepared to care for those patients with influenza, as well as patients with other potentially infectious diseases in the home. The following issues must be addressed by home healthcare companies and associations in planning for an influenza pandemic:

- Home care providers/managers should ensure that there is a qualified individual(s)/designee specifically assigned responsibility for infection control and occupational health.
- Assess infection control and occupational health policies and procedures to assure they are consistent with current guidelines.
- Develop strategies to assess possible transmission risk to the healthcare worker in the home based on referral information received:
    - Assure referrals from discharge planners or primary care providers address the presence or absence of communicable diseases.
    - Develop a communication plan to notify staff going into the home if precautions beyond standard precautions are indicated.
- Assure personal protective equipment (PPE) is accessible to staff.
    - Reinforce the need for staff to be prepared for any potential infectious situation.

  - Staff should have an ample supply of gloves for all patient care visits. Additionally, gowns, surgical masks, faceshields should be in easy access for the healthcare worker (e.g., in their vehicle or in their nursing bag).
  - The organization should also have certain staff fit-tested for an N-95 respirator, should the patient meet the criteria for Airborne Precautions.
- Assure hand hygiene materials are accessible.
  - Alcohol-based hand rubs (ABHR), antimicrobial soap and paper towels should be in easy access for the healthcare worker at the point of care.
- Designate a person to routinely access influenza surveillance information on the NYSDOH Influenza Website (http://www.health.state.ny.us/disease/communicable/influenza/surveillance.htm) and disseminate information regarding local influenza activity to healthcare workers.
- Plan and develop a system for rapid distribution of antiviral medication and/or influenza vaccine, in the event they are recommended.
- Procedures for making appropriate referrals for treatment and laboratory testing should be in place to facilitate identification of the causative agent, and implementation of treatment and control measures.
  - Assess routine infection control supply needs (e.g., PPE, ABHRs) during the routine influenza season. Identify a plan to increase needs if a pandemic strain is identified before it affects the local area.
  - Designate a person to regularly access the CDC Website (http://www.cdc.gov/flu/) to obtain updated information on the epidemiology of the pandemic, and to share with healthcare personnel.
  - Establish a chain of command/process for the rapid dissemination of infection control information to staff.

B. Infection control practices for home healthcare for all influenza pandemic phases

- Reinforce strict hand hygiene and prompt implementation of respiratory hygiene/cough etiquette by all home healthcare staff when caring for all patients with respiratory illness in the home.
  - Respiratory hygiene/cough etiquette should be implemented for all patients with influenza or a respiratory illness of unknown etiology. All staff should wear a surgical or procedure mask as per droplet precautions.
  - Instruct patients and family members/caregivers in the home on proper hand hygiene and respiratory hygiene/cough etiquette. Emphasis should be placed on instructing patients to use disposable tissues for wiping noses and to cover their mouth and nose when coughing or sneezing; performing hand hygiene after coughing, sneezing or using tissues; and the importance of keeping hands away from the mucous membranes of the eyes and nose.
- Home healthcare providers should identify those patients who are at high risk for complications from influenza and coordinate the ordering and administration of the vaccine. High risk individuals for complications of influenza are published annually in the NYSDOH guidance, Influenza Prevention and Control, located at:

(http://www.health.state.ny.us/diseases/communicable/influenza/guidelines/docs/2005-2006_influenza_guidelines.pdf).

- Home care personnel should be considered high risk for influenza and receive influenza vaccine annually.
- Instruct all healthcare workers to screen/assess clients and their household contacts for respiratory illness and influenza like illness (ILI) and report respiratory/flu like symptoms either to the patient's physician and/or to their home healthcare supervisor depending on level of skill, training or expertise.
- Any reusable medical equipment should be properly cleaned and disinfected or sterilized, as the medical device indicates (see CDC Website: http://www.cdc.gov/ncidod/dhqp/bp_sterilization_medDevices.html), before use with another patient. Close attention to cleaning protocols should be paid to equipment that comes in contact with respiratory secretions. Oral electronic thermometers, if used, should be used with plastic sheaths, and the entire surface should be cleaned after use.
- Any surfaces in the home contaminated with secretions from patient or household contacts should be thoroughly cleaned by using a household disinfectant and following the manufacturer's directions.

C. Infection control practices for home healthcare for a local influenza pandemic

- Follow infection control principles as delineated above.
- Enter every household wearing a surgical mask, until patient and all household contacts are assessed as free of respiratory illness. Assess the risk of influenza in the patient or household contacts and utilize respiratory hygiene/cough etiquette.
- Instruct patients and household contacts to avoid unnecessary visits to hospital, clinics or physicians offices.
- Provide ill patients and household contacts with surgical masks if a visit to hospital, physician or clinic becomes necessary and to phone ahead to notify the healthcare provider of respiratory symptoms prior to visit.
- Advise patients and household contacts to avoid public gatherings or unnecessary visits to other households to avoid or minimize exposure.
- Administer pandemic strain vaccine to home care patients as recommended, if medically indicated and available (See Section 6 on vaccine prioritization).
- Administer antiviral medication, if medically indicated and available (See Section 7 on antiviral prioritization).
- Minimize staffing changes to the extent possible (assign same staff to same patients).
- Provide infection control education to community resources and volunteers if utilized to assist with patient care.

D. Occupational health surveillance for the home healthcare setting

Occupational health for all pandemic periods

- All home health care workers should receive influenza immunization as recommended by the CDC. Vaccination records/rates should be maintained.

- Designate those responsible for the monitoring of employee health concerns in regards to respiratory illness.
- Instruct all health care workers to report respiratory illness or influenza-like illness to the facility designate.
- If onset of employee illness occurs at home, instruct the employee not to report to work until symptoms resolve.
- If onset of employee illness occurs while working, instruct the healthcare worker to don a surgical mask and to return to their own home or for evaluation, as clinically indicated.
- Consider use of antiviral medication as per the recommendations of the Advisory Committee on Immunization Practices: (http://www.cdc.gov/mmwr/PDF/rr/rr5408.pdf).

Occupational health for a local pandemic

Maintain surveillance activities as above, plus the following:

- All HCWs should perform a daily self-assessment for symptoms of influenza. A self-evaluation tool can be utilized for this purpose. The tool should provide guidance for symptomatic individuals (i.e., how, when and to whom to report respiratory symptoms).
- All those with respiratory symptoms and/or fever $\geq$ 100º F should be furloughed.
- If staffing crisis necessitates that HCWs work while ill, they should:
    - be assigned to care for patients with influenza or ILI,
    - wear a surgical or procedure mask, and
    - be placed on antiviral treatment, if available.

VIII. Specific Prehospital Care (Emergency Medical Services) Guidance

Patients with severe pandemic influenza or disease complications are likely to require emergency transport to the hospital. The following information is designed to protect EMS personnel during transport.

- 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.
- 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 face mask can be used to provide oxygen support during transport. If needed, positive-pressure ventilation should be performed using a resuscitation bag-valve mask.
- Unless medically necessary to support life, aerosol-generating procedures (e.g., mechanical ventilation) should be avoided during prehospital 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.

IX. Specific Infection Control Guidance for Outpatient Medical Offices

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

Detection of patients with possible pandemic influenza

- Post visual alerts (in appropriate languages) at the entrance to outpatient offices instructing persons with respiratory symptoms (e.g., patients, persons who accompany them) to:
  - Inform reception and healthcare personnel when they first register for care to practice respiratory hygiene/cough etiquette (see www.cdc.gov/ncidod/hip/enviro/Enviro_guide_03.pdf)
  - Sample visual alerts may be found 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.

"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 or surgical masks 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.

X. Specific Infection Control Guidance for 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 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 influenza-like illness by phone or before coming into the facility and rescheduling appointments for those whose care is non-emergency.
- Canceling all non-emergency services when there is pandemic influenza in the community.

XI. 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, provided their home is a suitable location for them during their illness. Voluntary home confinement by symptomatic persons will limit their contact with uninfected persons and help slow the spread of influenza. 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.

The decision to remain at home when ill with influenza will best be made in consultation with the person's/family's health care provider. Epidemiologic investigation of pandemic cases may reveal what characteristics (e.g., age less than 2 or greater than 64 years, underlying cardiac or respiratory disease, compromised immunity) increase a person's risk for severe disease and who will benefit most by receiving medical care (including antiviral treatment) early in the course of their infection. When a person remains at home, the appearance of certain conditions (i.e., shortness of breath while resting, difficult or painful breathing, wheezing, bloody sputum, fever for more than 4 days or a sudden

increase in fever, extreme ear pain, extreme drowsiness, disorientation, or confusion) deserve immediate medical attention.

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; see Appendix 4-A, Respiratory Etiquette/Cough Hygiene) after contact with an influenza patient or the environment in which care is provided.

When care is provided by a household member, basic infection control precautions should be emphasized. This includes:

- Physically separating the patient with influenza from non-ill persons living in the home as much as possible.
- Keeping the patient at home at all times 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 respiratory hygiene/cough etiquette (i.e., cover the mouth and nose when coughing and sneezing; see Appendix 4-B) and wear procedure or surgical masks if available.
- 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.
- 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 separate bag but can subsequently be disposed of 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.

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.

The management of other persons in the home should include:

- Restricting persons who have not been exposed to pandemic influenza and who are not essential for patient care or support from entering 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 (i.e., within 3 feet).
- 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 themselves closely for the development of influenza symptoms (including a thermometer to check for fever) and contact a telephone hotline or medical care provider if symptoms occur.

XII. 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). Existing "all-hazard" plans have likely identified designated sites for this purpose. The same principles of infection control apply in these settings as in other healthcare settings. Careful planning is necessary to ensure that resources are available and procedures are in place to adhere to the key principles of infection control. Consider the following infection control issues when triage or admission capacity is exceeded, leading the facility to initiate non-traditional sites for the care of patients (e.g., cafeterias, conference rooms, etc.):

- Prevent the flow of patients with respiratory illness from contact with non-infectious patients.
- Establish hand hygiene products at the point of care and in waiting areas.
- Ensure adequate supplies of personal protective equipment at the point of care.
- Provide for adequate disposal of infectious wastes.
- Provide ancillary staff with training to support the temporary structure (e.g., housekeeping).

XIII. 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. The benefit of wearing masks in these settings has not been established.

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

influenza are available for distribution. (CDC will develop educational materials appropriate to various audiences.)

XIV. 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.

When surveillance determines that a community is experiencing significant and sustained influenza transmission, community-wide measures are needed to decrease person-to-person transmission. These measures include the cancellation of public events (e.g., concerts, sporting events) and closure of offices and schools by declaring a minimum of 10 "snow days." In anticipation of community-wide snow days, schools and workplaces should determine in advance ways to maintain 'virtual' operations (e.g., tele-commuting, tele-schooling). While most schools and offices will close during this period, critical infrastructure personnel will continue to report to work. Determination of which personnel are considered critical will best be made in advance of significant and sustained transmission. Critical personnel should be enumerated and plans developed to protect them with limited vaccine and/or antiviral medications (see Sections 6 and 7). A period of snow days will continue until the number of new influenza cases in the community drops significantly or vaccine becomes available for use in the general population.

XV. Activities by Pandemic Period

All Pandemic Periods

State Health Department:

- Develop and provide materials for basic and setting specific infection control training materials to local health departments and healthcare facilities.
- Provide updated information on the epidemiology and clinical characteristics of novel influenza or identified pandemic influenza virus to the local health departments and healthcare providers through the NYSDOH Health Alert Network (HAN).

- Update pandemic influenza infection control guidance as indicated according to the virulence, transmissibility, incubation period, period of communicability, and drug susceptibility of the identified pandemic influenza strain. Communicate these changes to the local health department and healthcare providers through the NYSDOH HAN.
- Provide epidemiological assistance and infection control consultation for the prevention and control of pandemic influenza in Article 28 healthcare facilities (i.e., hospitals, nursing homes, and diagnostic and treatment centers).
- Provide epidemiological assistance and infection control consultation to LHDs for the prevention and control of pandemic influenza in non-Article 28 facilities and within the community, as needed.
- Adhere to recommended infection control practices to prevent exposure to, and transmission of, pandemic influenza when performing duties within healthcare settings or health-related functions (e.g., point of distribution sites).
- Provide the Centers for Disease Control and Prevention (CDC) weekly reports of the epidemiological presentation of influenza in NYS.

Local Health Departments:

- Provide epidemiological assistance and infection control consultation for the prevention and control of pandemic influenza in non-Article 28 facilities and community settings.
- Report confirmed or suspected pandemic influenza outbreaks that have been identified in non-Article 28 facilities and community settings to the Regional Office of the NYSDOH, Regional Epidemiology Program.
- Adhere to recommended infection control practices to prevent exposure to, and transmission of, pandemic influenza when performing duties within healthcare settings or health-related functions (e.g., point of distribution sites).
- LHDs that also have clinics and home healthcare agencies should also incorporate healthcare provider activities as applicable.
- Identify geographical areas (border states/regions/counties) that would trigger the initiation of more conservative infection control measures.

Healthcare Providers:

- Identify persons in your facility responsible for infection control and occupational health and assure adequate training, support, and access to resources (e.g., computer, internet). Assess number of persons capable of performing these associated tasks and plan for cross training other staff for these duties as appropriate.
- Review and revise infection control and prevention policies to assure guidance for pandemic influenza is incorporated.
- Review and revise visitation policies to assure guidance for pandemic influenza is incorporated.
- Educate healthcare workers on the basic infection control principles for preventing the spread of influenza and the management strategies for the containment of pandemic influenza.

- Monitor and reinforce adherence to recommended infection control practices to prevent exposure to, and transmission of, pandemic influenza within the healthcare setting.
- Communicate to clinicians and direct patient care staff updated information on the epidemiology, clinical characteristics, and additional control measures for pandemic influenza provided on the NYSDOH Health Advisory Network (HAN).
- Plan for how cohorting (if applicable to your healthcare setting) would be operationalized.
- Establish and implement surveillance systems for cases of influenza-like-illness (ILI) and confirmed influenza among patients/residents and healthcare workers.
- Report cases of novel influenza and influenza outbreaks as per the Surveillance and Laboratory Testing (Section 2) and per the Nosocomial outbreak management for all influenza pandemic periods (IV. G) in this section.
- Assess current triage settings and other common patient areas and plan for source control strategies to contain transmission from potentially infectious patients.
- Establish with the local health department geographical areas (border states/regions/counties) that would trigger the initiation of more conservative infection control measures.

Pandemic Period

State Health Department:

- Provide information on the evolvement of the pandemic in the world and any specific changes or additions to current infection control guidance to local health departments and healthcare providers through the HAN.
- Alert local health departments and healthcare facilities when the pandemic nears bordering states and advise on the implementation of additional conservative infection control measures (e.g., active screening of healthcare workers, implementation of non-traditional triage sites, cohorting of patients/residents) as indicated.
- Provide consultation to local health departments and healthcare facilities for complex situations that necessitate alterations of infection control practices (e.g., shortages of PPE, routine outbreak control measures ineffective).

Local Health Department:

- Regularly access the HAN for new information and changes in guidance for pandemic influenza and disseminate to healthcare providers and community as appropriate (e.g., those without access to the HAN).
- Communicate the need for the initiation of conservative infection control measures to facilities within the local jurisdiction when the pandemic reaches the geographical borders identified during pandemic planning.
- Provide consultation to non-Article 28 facilities and community settings for complex situations that necessitate alterations of infection control practices (e.g., shortages of PPE, routine outbreak control measures ineffective). Seek consultation from the NYSDOH as necessary.

Healthcare Facilities:

- Regularly access the HAN for new information and changes in guidance for pandemic influenza and disseminate to direct care providers.
- Initiate conservative infection control measures to when the pandemic reaches the geographical borders identified during pandemic planning.
- Report to appropriate public health entity (i.e., Article 28 facilities to the NYSDOH; non-Article 28 facilities to the local health department) when complex situations necessitate alterations of infection control practices (e.g., shortages of PPE, routine outbreak control measures ineffective).

Summary of Infection Control Recommendations for Care 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 handwashing 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 microbicidal activity, reduced drying of the skin, and convenience.
Personal protective equipment (PPE) • Gloves • Gown • Face/eye protection (e.g., surgical or procedure mask and goggles or a face shield)	• For touching blood, body fluids, secretions, excretions, and contaminated items; for touching mucous membranes and nonintact skin • During procedures and patient-care activities when contact of clothing/exposed skin with blood/body fluids, secretions, and excretions is anticipated • During procedures and patient care activities likely to generate splash or spray of blood, body fluids, secretions, excretions
Safe work practices	Avoid touching eyes, nose, mouth, or exposed skin with contaminated hands (gloved or ungloved); avoid touching surfaces with contaminated gloves and other PPE that are not directly related to patient care (e.g., door knobs, keys, light switches).
Patient resuscitation	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.

Soiled linen and laundry	Handle in a manner that prevents transfer of microorganisms to oneself, others, and to environmental surfaces; wear gloves (gown if necessary) when handling and transporting soiled linen and laundry; and perform hand hygiene.
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; place used sharps in a puncture-resistant container.
Environmental cleaning and disinfection	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).
Disposal of solid waste	Contain and dispose of solid waste (medical and non-medical) in accordance with facility procedures and/or local or state regulations; wear gloves when handling waste; wear gloves when handling waste containers; perform hand hygiene.
Respiratory hygiene/cough etiquette Source control measures for persons with symptoms of a respiratory infection; implement at first point of encounter (e.g., triage/reception areas) within a healthcare setting.	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	www.cdc.gov/ncidod/hip/ISOLAT/droplet_prec_excerpt.htm
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; and apply droplet precautions to all persons in the room. *During the early stages of a pandemic, infection with influenza should be laboratory-confirmed, if possible. 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 and laundry and 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 N95 respirator or other appropriate particulate respirator.

(Source: HHS Pandemic Influenza Plan, Part 2-Public Health Guidance Supplements, Supplement 4)

Respiratory Hygiene/Cough Etiquette

To contain respiratory secretions, all persons with signs and symptoms of a respiratory infection, regardless of presumed cause, should be instructed 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/materials.

Healthcare facilities should ensure the availability of materials for adhering to respiratory hygiene/cough etiquette in waiting areas for patients and visitors:

- Provide tissues and no-touch receptacles for used tissue disposal.
- Provide conveniently located dispensers of alcohol-based hand rub.
- Provide soap and disposable towels for handwashing where sinks are available.

Masking and separation of persons with symptoms of respiratory infection
During periods of increased respiratory infection in the community, persons who are coughing should be offered either a procedure mask (i.e., with ear loops) or a surgical mask (i.e., with ties) to contain respiratory secretions. Coughing persons should be encouraged to sit as far away as possible (at least 3 feet) from others in common waiting areas. Some facilities may wish to institute this recommendation year-round.

Last revised: December 2, 2005

Section 5: Clinical Guidelines

I. Overview

II. Objectives

III. Clinical Guidelines for the Interpandemic and Pandemic Alert Periods

IV. Clinical Guidelines for the Pandemic Period

V. Activities by Pandemic Period

Appendices:

5-A: Risk of Novel Influenza in Persons with Severe Respiratory Disease or Influenza-Like Illness during the Interpandemic and Pandemic Alert Periods

5-B: Clinical Evaluation of Patients with Influenza-Like Illness during the Interpandemic and Pandemic Alert Periods

5-C: Special Situations and Exceptions to the Clinical Criteria

5-D: Home Care Infection Control Guidance for Pandemic Influenza Patients and Household Members

5-E: Case Detection and Clinical Management during the Interpandemic and Pandemic Alert Periods

5-F: Case Detection and Clinical Management during the Pandemic Period

5-G: Management of Community-Acquired Pneumonia during an Influenza Pandemic: Adults

5-H: Management of Community-Acquired Pneumonia during an Influenza Pandemic: Children

5-I: Pandemic Influenza Infection Control Guidance for Healthcare Providers

5-J: Clinical Presentation and Complications of Seasonal Influenza

5-K: Clinical Presentation and Complications of Illnesses Associated with Avian Influenza A (H5N1) and Previous Pandemic Influenza Viruses

5-L: Guidelines for Management of Community-Acquired Pneumonia, Including Post-Influenza Community-Acquired Pneumonia

I. Overview*

This section provides clinical procedures for the initial screening, assessment, and management of patients with suspected novel influenza during the Interpandemic and Pandemic Alert Periods, and for patients with suspected pandemic influenza during the Pandemic Period. The appendices include information on the clinical presentation and complications of seasonal influenza, the clinical features of infection due to avian influenza A (H5N1) virus and previous pandemic influenza viruses, and the management of patients with community-acquired pneumonia or secondary bacterial pneumonia during a pandemic. The guidance is current as of October 2005, and is subject to change as experience is gained. Updates will be provided, as needed, on the NYSDOH HPN (https://commerce.health.state.ny.us/hpn/) and on the CDC website (www.cdc.gov/flu/).

During the Interpandemic and Pandemic Alert Periods, early recognition of illness caused by a novel influenza A virus strain will rely on a combination of clinical and epidemiologic features. During the Pandemic Period (in a setting of high community prevalence), diagnosis will likely be more clinically oriented because the likelihood will be high that any severe febrile respiratory illness is pandemic influenza.

During periods in which no human infections with a novel influenza A virus strain have occurred anywhere in the world (Interpandemic Period: Phases 1, 2; see Appendix 5-A), or when sporadic cases of animal-to-human transmission or rare instances of limited human-to-human transmission of a novel influenza A virus strain have occurred in the world (Pandemic Alert Period: Phases 3, 4), the likelihood of novel influenza A virus infection is very low in a returned traveler from an affected area who has severe respiratory disease or influenza-like illness. Since human influenza A and B viruses circulate worldwide among humans year-round, the possibility of infection with human influenza viruses is much higher and should be considered.

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

This section is designed to serve as a guide for clinicians, with the understanding that the management of influenza is based primarily on sound clinical judgment regarding the individual patient as well as an assessment of locally available resources, such as rapid diagnostics, antiviral drugs, and hospital beds. Early antiviral therapy shortens the duration of illness due to seasonal influenza and would be expected to have similar effects on illness due to novel or pandemic influenza viruses (see Section 7: Antiviral Medication Procurement, Distribution and Use). Clinical management must also address supportive care and management of influenza-related complications.

* This section closely adapted from the U.S. Department of Health and Human Services. HHS Pandemic Plan, Supplement 5. November 2005

II. Objectives

- Ensure the availability of current information to aid in education of clinicians and diagnosis of novel influenza viruses.
- Provide guidance on the clinical management of suspect and confirmed novel influenza virus cases.
- Facilitate laboratory testing of specimens on suspect and confirmed novel influenza cases.
- Provide consultation on atypical presentations of disease and follow up on possible drug resistant strains of virus.

III. Clinical Guidelines for the Interpandemic and Pandemic Alert Periods

During the Interpandemic and Pandemic Alert Periods, the primary goal of rapid detection is to quickly identify and contain cases of novel influenza. To limit the need to evaluate an overwhelming number of patients, the screening criteria should be specific, relying on a combination of clinical and epidemiologic features. Although febrile respiratory illnesses are one of the most common indications for medical evaluation, particularly during the winter, during the interpandemic and pandemic alert period, human cases of novel influenza are expected to be quite rare; laboratory diagnosis will most likely be sought for those with severe respiratory illness, such as pneumonia. The main features of detection and clinical management during the Interpandemic and Pandemic Alert Periods are outlined in Appendix 5-E.

A. Criteria for evaluation of patients with possible novel influenza

The following criteria are based on the features of recent avian influenza A (H5N1) cases but are intended for use in evaluating suspected cases of infection with any novel influenza A virus strain. During the Pandemic Alert Period, human infections with novel influenza A viruses will be an uncommon cause of influenza-like illness (temperature of >38˚C plus either sore throat, or cough with dyspnea as an additional criteria); therefore, **both clinical and epidemiologic criteria should be met.** The criteria will be updated when needed as more data are collected.

1. Clinical criteria

Any suspected cases of human infection with a novel influenza virus must first meet the clinical criteria:

- Severe illness: hospitalized with severe ILI, including pneumonia or ARDS
- Mild to moderate illness:
  - Fever (temperature >38° C or 100.4° F) and
  - Either sore throat, cough, or dyspnea

2. Epidemiologic criteria

Epidemiologic criteria for evaluation of patients with possible novel influenza focus on the risk of exposure to a novel influenza virus with pandemic potential. Although the

incubation period for seasonal influenza ranges from 1 to 4 days, the incubation periods for novel types of influenza are currently unknown and might be longer. **Therefore, the maximum interval between potential exposure and symptom onset is set conservatively at 10 days.**

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

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

  Direct contact with poultry is defined as:
  – Touching birds (well-appearing, sick, or dead), or
  – Touching poultry feces or surfaces contaminated with feces, or
  – Consuming uncooked poultry products (including blood)
  in an affected area.

  Close contact with a person from an infected area with confirmed or suspected novel influenza is defined as being within 3 feet (1 meter) of that person during their illness. Because specific testing for human infection with avian influenza A (H5N1) might not be locally available in an affected area, persons reporting close contact in an affected area with a person suffering from a severe, yet unexplained, respiratory illness should also be evaluated.

- **Occupational risks**
  Persons at occupational risk for infection with a novel strain of influenza include:

  1) Persons who work on farms or live poultry markets or who process or handle poultry infected with known or suspected avian influenza viruses,
  2) Workers in laboratories that contain live animal or novel influenza viruses, and
  3) Healthcare workers in direct contact with a suspected or confirmed novel influenza case.

  Information on limiting occupational risk is provided on the Occupational Health and Safety Administration (OSHA) website at: www.osha.gov/dsg/guidance/avian-flu.html.

During the Interpandemic and Pandemic Alert Periods (Phases 1-4), when there is no sustained human-to-human transmission of any novel influenza viruses, direct contact with animals such as poultry in an affected area or close contact with a case of suspected or confirmed human novel influenza—for any reason—requires further evaluation.

During the Pandemic Alert Period, Phases 3 and 4, the majority of human cases of novel influenza will result from avian-to-human transmission (see Appendix 5-A). Therefore, a history of direct contact with poultry (well-appearing, sick, or dead), consumption of uncooked poultry or poultry products, or direct exposure to environmental contamination with poultry feces in an affected area will be important to ascertain.

During the Pandemic Alert Period, Phase 5, a history of close contact with an ill person suspected or confirmed to have novel influenza in an affected area will be even more important.

Given the large number of influenza-like illnesses defined as temperature of >38°C plus either sore throat, cough, or dyspnea that clinicians encounter during a typical flu season, **laboratory evaluation for novel influenza A viruses during the Interpandemic and Pandemic Alert Periods is recommended only for:**

1. Hospitalized patients with severe ILI, including pneumonia or ARDS, who meet the epidemiologic criteria of travel within 10 days of onset to an affected country even if no history of direct contact with poultry or confirmed human case.
2. Mild to moderate illness: non-hospitalized patients with ILI and with strong epidemiologic suspicion of novel influenza virus exposure (e.g., direct contact with ill poultry in an affected area, or close contact with a known or suspected human case of novel influenza or occupational exposure).
3. Recommendations for the evaluation of patients with respiratory illnesses are provided in Appendix 5-B. Exceptions to the current clinical criteria are provided in Appendix 5-C.

Although recent infections with novel influenza viruses have resulted in severe respiratory illness, the next pandemic influenza virus strain might present with a different clinical syndrome (see Appendix 5-J and Appendix 5-K). In such a situation, the clinical criteria will be modified accordingly and posted at NYSDOH HPN (https://commerce.health.state.ny.us/hpn/) or the CDC website (www.cdc.gov/flu).

In the future, other animal hosts (in addition to poultry) or novel influenza A virus subtypes (in addition to H5N1) might become significantly associated with human disease. If such events occur, this guidance will be updated.

B. Initial management of patients who meet the criteria for novel influenza

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

1) **Notify the local health department (LHD).** Report each patient who meets the clinical and epidemiologic criteria for a suspected case of novel influenza to the LHD as quickly as possible to facilitate initiation of public health measures. Designate one person as a point of contact to update public health authorities on the patient's clinical status.

    - Immediately report any suspect influenza A (H5N1) cases to the LHD. If unable to reach the LHD, contact the appropriate NYSDOH Regional Office. If unable to reach the regional office please contact the NYSDOH Bureau of Communicable Disease Control at (518) 473-4436, or the NYSDOH After-Hours Duty Officer at 1-866-881-2809.
    - In New York City, contact the New York City Department of Health and Mental Hygiene through the Provider Access Line at 1-866-NYC-DOH1 (1-866-692-3641) during business hours. At all other times, call the Poison Control Center at 1-212-764-7667.

2) **Implement infection control precautions for novel influenza, including Respiratory Hygiene/Cough Etiquette.** Patients should be placed on Droplet Precautions for a minimum of 14 days, unless there is full resolution of illness or another etiology has been identified before that period has elapsed. Healthcare personnel should wear surgical or procedure masks on entering a patient's room, as per Droplet Precautions, as well as gloves and gowns, when indicated for Standard Precautions (Appendix 5-I). Patients should be admitted to a single-patient room, and patient movement and transport within the hospital should be limited to medically necessary purposes (see also Section 4: Infection Control).

3) **Obtain clinical specimens for novel influenza A virus testing after consulting with the LHD to arrange testing.** Testing will be directed by public health authorities and current guidelines are provided in Section 2: Surveillance and Laboratory Testing, and Appendix 2-C: Diagnostic Laboratory for Pandemic Influenza.

    A) The following respiratory specimens should be collected for novel influenza A virus testing: nasopharyngeal swab; nasal swab, wash, or aspirate; throat swab; and tracheal aspirate (for intubated patients).

        - Store specimens at 4°C in viral transport media until transported or shipped for testing.

        - Clinicians should work with their LHD to ship clinical specimens from suspected cases of human infection with avian influenza, to ensure that the specimens are handled under proper biocontainment conditions and submit a completed Virus Reference and Surveillance Laboratory patient history form with specimens. The form is available on the HPN and HIN at:

- https://commerce.health.state.ny.us/hpn/hanweb/flu/virussurvrefhistoryform.pdf. (See Section 2, Surveillance and Laboratory Testing, Appendix 2-C: Diagnostic Laboratory for Pandemic Influenza).

- Novel influenza can be confirmed by RT-PCR or virus isolation from tissue cell culture with subtyping. RT-PCR for testing of novel influenza viruses **cannot** be performed by a hospital laboratory and is available only at the Wadsworth Center and CDC. Viral culture of specimens from suspected novel influenza cases should be attempted only in laboratories that meet the biocontainment conditions for BSL-3 with enhancements or higher.

- Rapid influenza diagnostic tests and immunofluorescence (indirect fluorescent antibody staining [IFA] or directfluorescent antibody staining [DFA]) may be used to detect seasonal influenza, but should not be used to confirm or exclude novel influenza during the Pandemic Alert Period. Rapid influenza tests have relatively low sensitivity for detecting seasonal influenza,[1] and their ability to detect novel influenza subtypes is unknown. The sensitivity of rapid diagnostic tests will likely be higher in specimens collected within two days of illness onset, in children, and when tested in clinical laboratories that perform a high volume of testing. Such tests can identify influenza A viruses but cannot distinguish between human infection with seasonal and novel influenza A viruses. A negative rapid influenza test result does not necessarily exclude human infection with either seasonal or novel influenza A viruses. A positive rapid influenza test result could be a false positive or represent infection with either seasonal or novel influenza A viruses. Therefore, both negative and positive rapid influenza test and immunofluorescence results should be interpreted with caution and RT-PCR testing for influenza viruses should be performed. Further information on rapid diagnostic testing is provided in Section 2.

B) Acute (within 7 days of illness onset) and convalescent serum specimens (2–3 weeks after the acute specimen and at least 3 weeks after illness onset) should be obtained and refrigerated at 4°C or frozen at minus 70°C (Serological testing for novel influenza virus infection can be performed only at CDC).

C) Other available clinical specimens (respiratory, blood, and stool) should be saved and refrigerated or frozen for additional testing until a specific diagnosis is made.

4) **Evaluate alternative diagnoses.** An alternative diagnosis should be based only on laboratory tests with high positive-predictive value (e.g., blood culture, viral culture, PCR, *Legionella* urinary antigen, pleural fluid culture, transthoracic aspirate culture). If an alternate etiology is identified, the possibility of co-

infection with a novel influenza virus may still be considered if there is a strong epidemiologic link to exposure to novel influenza.

5) **Decide on inpatient or outpatient management.** The decision to hospitalize a suspected novel influenza case will be based on the physician's clinical assessment and assessment of risk and whether adequate precautions can be taken at home to prevent the potential spread of infection. Patients cared for at home should be separated from other household members as much as possible. Consult with LHD for guidance (see Section 2: Surveillance and Laboratory Testing). All household members should carefully follow recommendations for hand hygiene, and tissues used by the ill patient should be placed in a bag and disposed with other household waste (Appendix 5-D).

6) **Initiate antiviral treatment** as soon as possible, even if laboratory results are not yet available. Clinical trials have shown that these drugs can decrease the illness due to seasonal influenza duration by several days when they are initiated within 48 hours of illness onset. The clinical effectiveness of antiviral drugs for treatment of novel influenza is unknown, but it is likely that the earlier treatment is initiated, the greater the likelihood of benefit. During the Pandemic Alert Period, available virus isolates from any case of novel influenza will be tested for resistance to the currently licensed antiviral medications (see Section 7).

7) **Assist public health officials** with the identification of potentially exposed contacts. After consulting with state and local public health officials, clinicians might be asked to help identify persons exposed to the suspected novel influenza case-patient (particularly healthcare workers). In general, persons in close contact with the case-patient at any time beginning one day before the onset of illness are considered at risk. Close contacts might include household and social contacts, family members, workplace or school contacts, fellow travelers, and/or healthcare providers (see Section 2: Surveillance and Laboratory Testing).

C. Management of patients who test positive for novel influenza

If a patient is confirmed to have an infection with a novel influenza virus, healthcare personnel should continue antiviral treatment and all isolation and infection control precautions, and isolate patients with novel influenza from seasonal influenza patients. In addition to prior vaccination against seasonal influenza, such measures may decrease the risk of co-infection and viral genetic reassortment.

D. Management of patients who test positive for seasonal influenza

Many suspected novel influenza cases may be found to have seasonal human influenza, particularly during the winter season. It should be recognized that human influenza viruses circulate among people worldwide, including in affected areas with poultry outbreaks of avian influenza A viruses during non-seasonal influenza activity in the United States. For patients with confirmed seasonal influenza, maintain Standard and Droplet Precautions, and continue antiviral treatment for a full treatment course (e.g., 5 days).

E. Management of patients who test negative for novel influenza

1) The sensitivity of the currently available tests for detecting novel influenza viruses in clinical specimens has not been thoroughly evaluated with a full range of specimen types. Consequently, false-negative test results may occur. Therefore, if test results are negative but the clinical and epidemiologic suspicion remains high, continuing antiviral treatment and isolation procedures should be considered.
2) Interpretation of negative testing results should be tailored to the individual patient in consultation with hospital infection control and infectious disease specialists, as well as the LHD or state.
3) In hospitalized patients who test negative for novel influenza but have no alternate diagnosis established, novel-influenza-directed management should be continued if clinical suspicion is high and there is a strong epidemiologic link to exposure to novel influenza.
4) When influenza tests are negative and an alternative diagnosis is established, isolation precautions and antiviral drug therapy for novel influenza may be discontinued based on clinician's assessment, particularly in the absence of a strong epidemiologic link, if the alternative diagnosis is made using a test with a high positive-predictive value, and if the clinical manifestations are explained by the alternative diagnosis.

IV. Clinical Guidelines for the Pandemic Period

During the Pandemic Period, the primary goal of rapid detection is to appropriately identify and triage cases of pandemic influenza. During this period, outpatient clinics and emergency departments might be overwhelmed with suspected cases, restricting the time and laboratory resources available for evaluation. In addition, if the pandemic influenza virus exhibits transmission characteristics similar to those of seasonal influenza viruses, illnesses will likely spread throughout the community too rapidly to allow the identification of obvious exposures or contacts. Evaluation will therefore focus predominantly on clinical and basic laboratory findings, with less emphasis on laboratory diagnostic testing (which may be in short supply) and epidemiologic criteria. **Nevertheless, clinicians in communities without pandemic influenza activity might consider asking patients about recent travel from a community with pandemic influenza activity or close contact with a suspected or confirmed pandemic influenza case.** The main features of clinical management during the Pandemic Period are outlined in Appendix 5-F.

A. Criteria for evaluation of patients with possible pandemic influenza

1. Clinical criteria

Suspected cases of pandemic influenza virus infection should meet the criteria of: **fever (temperature of >38°C) plus one or more of the following: sore throat, cough, or dyspnea.**

Although past influenza pandemics have most frequently resulted in respiratory illness, the next pandemic influenza virus strain might present with a different clinical syndrome (see Appendix 5-J and Appendix 5-K). During a pandemic, updates on other clinical presentations will be provided at: https://commerce.health.state.ny.us/hpn/, www.pandemicflu.gov, and www.cdc.gov/flu/.

Recommendations for general evaluation of patients with influenza-like illness are provided in Appendix 5-B. Exceptions to the clinical criteria are provided in Appendix 5-C.

2. Epidemiologic criteria

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

B. Initial management of patients who meet the criteria for pandemic influenza

When a patient meets the criteria for a suspected case of pandemic influenza, healthcare personnel should initiate the following activities:

1) **Follow local and state health department recommendations on reporting** for patients who meet the criteria for pandemic influenza (see Section 5, II.B.1 and Section 2: Surveillance and Laboratory Testing).

2) **If the patient is hospitalized, implement infection control precautions for pandemic influenza**, including Respiratory Hygiene/Cough Etiquette (see Section 4: Infection Control). Place the patient on Droplet Precautions for a minimum of 5 days from the onset of symptoms. Healthcare personnel should wear surgical or procedure masks on entering a patient's room, as per Droplet Precautions, as well as gloves and gowns when indicated, as per Standard Precautions (Appendix 5-I). Once a pandemic is underway, hospital admission of patients should be limited to those with severe complications who cannot be cared for outside the hospital setting. Patients should be admitted to either a single-patient room or an area designated for cohorting of patients with influenza. Patient movement and transport outside the isolation area should be limited to medically necessary purposes (see Appendix 5-I and Section 4: Infection Control).

3) **Obtain clinical specimens for general evaluation, as clinically indicated** (see Appendix 5-B). Once pandemic influenza has arrived in a community, influenza testing will likely not be needed for most patients. Laboratory testing in conjunction with health departments will likely be performed in a subset of pandemic influenza cases, however, as part of ongoing virologic surveillance to

monitor the antigenic evolution of the strains for vaccine strain selection purposes (see Section 2: Surveillance and Laboratory Testing). At the beginning or end of a pandemic outbreak in a community, diagnostic testing might aid cohorting decisions, but may be optional in the setting of high local prevalence. Influenza diagnostic testing should be considered before initiating treatment with antivirals. Guidelines for pandemic influenza virus testing are provided in Section 2: Surveillance and Laboratory Testing.

As with seasonal influenza, RT-PCR and virus isolation from tissue culture will be the most accurate methods for diagnosing pandemic influenza. Generally, specimens should include combined nasopharyngeal aspirates or nasal swabs, and throat swabs, stored at 4°C in viral transport media. During the Pandemic Period, BSL-2 conditions should be sufficient for viral culture of clinical specimens from suspected pandemic influenza patients.

Rapid diagnostic tests for influenza and immunofluorescence may be helpful for initial clinical management, including cohorting and treatment (see above). However, rapid influenza tests have relatively low sensitivity for detecting seasonal influenza, and their ability to detect pandemic influenza viruses is unknown. The sensitivity of rapid diagnostic tests will likely be higher in specimens collected within two days of illness onset, in children, and when tested at clinical laboratories that perform a high volume of testing. Because during a pandemic a negative rapid test may be a false negative, test results need to be interpreted within the overall clinical context. For example, it may not be optimal to withhold antiviral treatment from a seriously ill high risk patient on the basis of a negative test; however, in a setting of limited antiviral drug availability, treatment decisions in less high risk situations could be based on test results. The risk of a false-negative test also must be taken into account in making cohorting decisions. Rapid diagnostic testing should not preclude more reliable testing, if available. Further information on rapid diagnostic testing can be found in Section 2: Surveillance and Laboratory Testing.

4) **Decide on inpatient or outpatient management.** The decision to hospitalize a suspected pandemic influenza case will be based on the physician's clinical assessment of the patient as well as the availability of hospital beds and personnel. Guidelines on cohorting and infection control for admitted patients can be found in Section 4: Infection Control. An unstable patient will be considered a high priority for admission, but patients with high-risk conditions (see Appendix 5-J) might also warrant special attention, such as observation or close follow-up, even if disease is mild. On the other hand, home management with follow-up might be appropriate for well-appearing young children with fever alone.

Patients cared for at home should be separated from other household members as much as possible. All household members should carefully follow recommendations for hand hygiene, and tissues used by the ill patient should be placed in a bag and disposed with other household waste (Appendix 5-D).

Infection within the household may be minimized if a primary caregiver is designated; ideally, someone who does not have an underlying condition that places them at increased risk of severe influenza disease. Although no studies have assessed the use of masks at home to decrease the spread of infection, using a surgical or procedure mask by the patient or caregiver during interactions may be of benefit. Separation of eating utensils for use by a patient with influenza is not necessary, as long as they are washed with warm water and soap (Appendix 5-D).

C. Clinical management of pandemic influenza patients

See Section 7 for current antiviral information and treatment strategies. In addition to use of antivirals, clinical management of severe influenza should address supportive care and the rapid identification and treatment of secondary complications. During the Pandemic Period, NYSDOH may request virus isolates from persons who fail treatment or antiviral prophylaxis, as these strains may more likely be drug resistant. In addition, randomly collected isolates will be tested for resistance to establish nationwide rates.

Children aged <18 years with suspected or confirmed pandemic influenza should not be treated with aspirin or other salicylate-containing products because of an increased risk of Reye syndrome (characterized by acute encephalopathy and liver failure) in this age group.

The major clinical presentations and complications related to seasonal human influenza occur more commonly in persons with certain underlying medical conditions, such as chronic respiratory or cardiovascular disease and extremes of age, and are described in Appendix J. Limited data are available on risk factors and complications related to infection with novel influenza viruses, and these may change as individual strains evolve. A summary of the clinical presentations and complications associated with recent influenza A (H5N1) viruses is included in Appendix K. In particular, post-influenza community-acquired pneumonia will likely be a commonly encountered complication, and clinicians will need to be aware of recommended methods for diagnosis and treatment. Guidance on the management of influenza-related pneumonia is presented in Appendix 5-L.

V. Activities by Pandemic Period

Interpandemic and Pandemic Alert Periods

Healthcare Providers:

- Be aware of case definitions; procedures for screening, infection control, laboratory testing, and antiviral regimens for influenza A (H5N1) and other novel influenza viruses, by accessing the NYSDOH Health Provider Network (HPN) (https://commerce.health.state.ny.us/hpn/).
- Notify LHDs about suspected novel influenza cases and fatalities.

- Collect recommended specimens for diagnosis of novel influenza in consultation with the LHD.
- Forward specimens to the Wadsworth Center after consultation with the LHD.

Local Health Departments:
- Help educate healthcare providers about novel and pandemic influenza.
- Provide consultation and investigation of suspected novel influenza cases to healthcare providers in conjunction with the state health department.
- Consult on collection of specimens of suspected novel influenza testing.
- Facilitate the transfer of specimens to the Wadsworth Center.
- Conduct follow-up of suspected novel influenza cases.
- Conduct contact investigations.

State Health Department:
- Develop materials and help educate healthcare providers about novel and pandemic influenza.
- Provide consultation to LHDs and healthcare providers as needed, on suspect novel influenza cases.
- Provide updated information and materials to LHDs.
- Develop a state stockpile of antiviral drugs.
- Work with LHDs and Wadsworth Center to coordinate testing.

HHS Agencies:
- Develop and disseminate recommendations on the use of influenza diagnostic tests, antiviral drugs, and vaccines during a pandemic.
- Develop a national stockpile of antiviral drugs for use during a pandemic.
- Work with partner organizations to discuss and resolve clinical issues related to pandemic influenza response.
- Assist ministries of health and WHO in characterizing cases of human infection with avian influenza A (H5N1) or other novel strains of influenza, particularly with regard to antiviral susceptibility, transmission parameters, and clinical outcomes.
- Work with state and LHDs to investigate and manage suspected cases of human infection with avian influenza A (H5N1) or other novel strains of influenza.
- Establish case definition and reporting mechanisms.

Pandemic Period

Healthcare Providers:
- Regularly consult updates on case definitions, screening, laboratory testing, and treatment algorithms for pandemic influenza by accessing the NYSDOH Health Provider Network (HPN) (https://commerce.health.state.ny.us/hpn/).
- Report pandemic influenza cases or fatalities as requested by the LHD and NYSDOH.
- Collect recommended specimens for ongoing pandemic influenza surveillance and forward specimens as requested to NYSDOH Center after consultation with LHD.

- Report atypical cases, breakthrough infections while on prophylaxis, or any other abnormal cases throughout the duration of the pandemic as directed by the LHD and/or NYSDOH.

Local Health Departments:
- Update providers regularly as the influenza pandemic unfolds.
- Provide or facilitate testing and investigation of pandemic influenza cases.
- Work with NYSDOH to investigate and report special pandemic situations.

State Health Department:
- Update LHDs and providers regularly as the influenza pandemic unfolds.
- Work with LHDs and Wadsworth Center to coordinate testing.
- Work with LHDs to investigate and report special pandemic situations.

HHS Agencies:
- Update and disseminate national guidelines on influenza diagnostic testing and use of antiviral drugs and vaccines during the pandemic.
- Develop a pandemic influenza vaccine.
- Work with healthcare partners to refine clinical management guidelines and issue regular updates on treatment issues.
- Conduct observational and interventional studies with partner institutions to investigate pandemic influenza pathogenesis and develop disease prevention and treatment strategies.
- Monitor pandemic influenza cases for antiviral resistance and transmission parameters.
- Monitor antiviral drug use and inventories.
- Collect information on clinical features, outcomes, and treatments.

[1] Uyeki TM. Influenza diagnosis and treatment in children: a review of studies on clinically useful tests and antiviral treatment for influenza. Pediatr Infect Dis J. 2003 Feb;22(2):164-77.

Risk of Novel Influenza in Persons with Severe Respiratory Disease or Influenza-Like Illness during the Interpandemic and Pandemic Alert Periods

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

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

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

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

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Clinical Evaluation of Patients with Influenza-Like Illness during the Interpandemic and Pandemic Alert Periods

- Patients who require hospitalization for an influenza-like illness for which a definitive alternative diagnosis is not immediately apparent* should be questioned about:
    1. travel to an area affected by avian influenza A virus outbreaks in poultry,
    2. direct contact with poultry,
    3. close contact with persons with suspected or confirmed novel influenza, or
    4. occupational exposure to novel influenza viruses (such as through agricultural, health care, or laboratory activities).
- Patients may be screened on admission for recent seasonal influenza vaccination and pneumococcal vaccination. Those without a history of immunization should receive these vaccines before discharge, if indicated.
- Patients meeting the epidemiologic criteria for possible infection with a novel strain of influenza should undergo a routine diagnostic work-up, guided by clinical indications. Appropriate personal protective equipment should be used when evaluating patients with suspected novel influenza, including during collection of specimens.**
- Immediately contact the local and state health departments to report the suspected case and to arrange laboratory testing.
- Diagnostic testing for a novel influenza A virus should be initiated as follows:
    - Collect all of the following specimens: nasopharyngeal swab, nasal swab, wash, or aspirate, throat swab, and tracheal aspirate (if intubated), and place into viral transport media and refrigerate at 4°C until specimens can be transported for testing. See Section 2.
    - RT-PCR testing is not available in hospital laboratories and must be performed at a qualified laboratory such as the Wadsworth Center laboratory or the CDC Influenza Laboratory. Viral culture should be performed only at biosafety level 3 [BSL-3] with enhancements.
- Depending on the clinical presentation and the patient's underlying health status, other initial diagnostic testing might include:
    - Pulse oximetry
    - Chest radiograph
    - Complete blood count (CBC) with differential
    - Blood cultures
    - Sputum (in adults), tracheal aspirate, and pleural effusion aspirate (if an effusion is present) Gram stain and culture
    - Antibiotic susceptibility testing (encouraged for all bacterial isolates)
    - Multivalent immunofluorescent antibody testing or PCR of nasopharyngeal aspirates or swabs for common viral respiratory pathogens, such as influenza A and B, adenovirus, parainfluenza viruses, and respiratory syncytial virus, particularly in children
    - In adults with radiographic evidence of pneumonia, Legionella and pneumococcal urinary antigen testing

- If clinicians have access to rapid and reliable testing (e.g., PCR) for M. pneumoniae and C. pneumoniae, adults and children <5 yrs with radiographic pneumonia should be tested
- Comprehensive serum chemistry panel, if metabolic derangement or other end-organ involvement, such as liver or renal failure, is suspected.

* Further evaluation and diagnostic testing should also be considered for outpatients with strong epidemiologic risk factors and mild or moderate illness (see Appendix C).
** Healthcare personnel should wear surgical or procedure masks on entering a patient's room (Droplet Precautions), as well as gloves and gowns, when indicated (Standard Precautions) (see Appendix I and Section 4, Infection Control).

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Special Situations and Exceptions to the Clinical Criteria

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

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

*Updated lists of affected areas are provided at the websites of the OIE (http://www.oie.int/eng/ en_index.htm), WHO (www.who.int/en/), and CDC (www.cdc.gov/flu/).

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Home Care Infection Control Guidance for Pandemic Influenza Patients and Household Members

Most patients with pandemic influenza will be able to remain at home during the course of their illness and can be cared for by family members or others who live in the household. Anyone who has been in the household with an influenza patient during the incubation period is at risk for developing influenza. A key objective in this setting is to limit transmission of pandemic influenza within and outside the home.

Management of influenza patients in the home

- 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 respiratory hygiene/cough etiquette (i.e., cover the mouth and nose when coughing and sneezing) and should wear a mask.

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 still having a fever due to pandemic influenza.
- If unexposed persons must enter the home, they should avoid close contact with the patient.
- Persons living in the home with the patient with pandemic influenza should limit contact with the patient to the extent possible; consider designating one person as the primary care provider.
- Household members should be vigilant for the development of influenza symptoms. Consult with healthcare providers to determine whether a pandemic influenza vaccine, if available, or antiviral prophylaxis should be considered.

Infection control measures in the home

1. 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 they are receiving care.
2. Although no studies have assessed the use of masks at home to decrease the spread of infection, using a surgical or procedure mask by the patient or caregiver during interactions may be beneficial.
3. Soiled dishes and eating utensils should be washed either in a dishwasher or by hand with warm water and soap. Separation of eating utensils for use by a patient with influenza is not necessary.
4. Laundry may 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 self-contamination. Hand hygiene should be performed after handling soiled laundry.

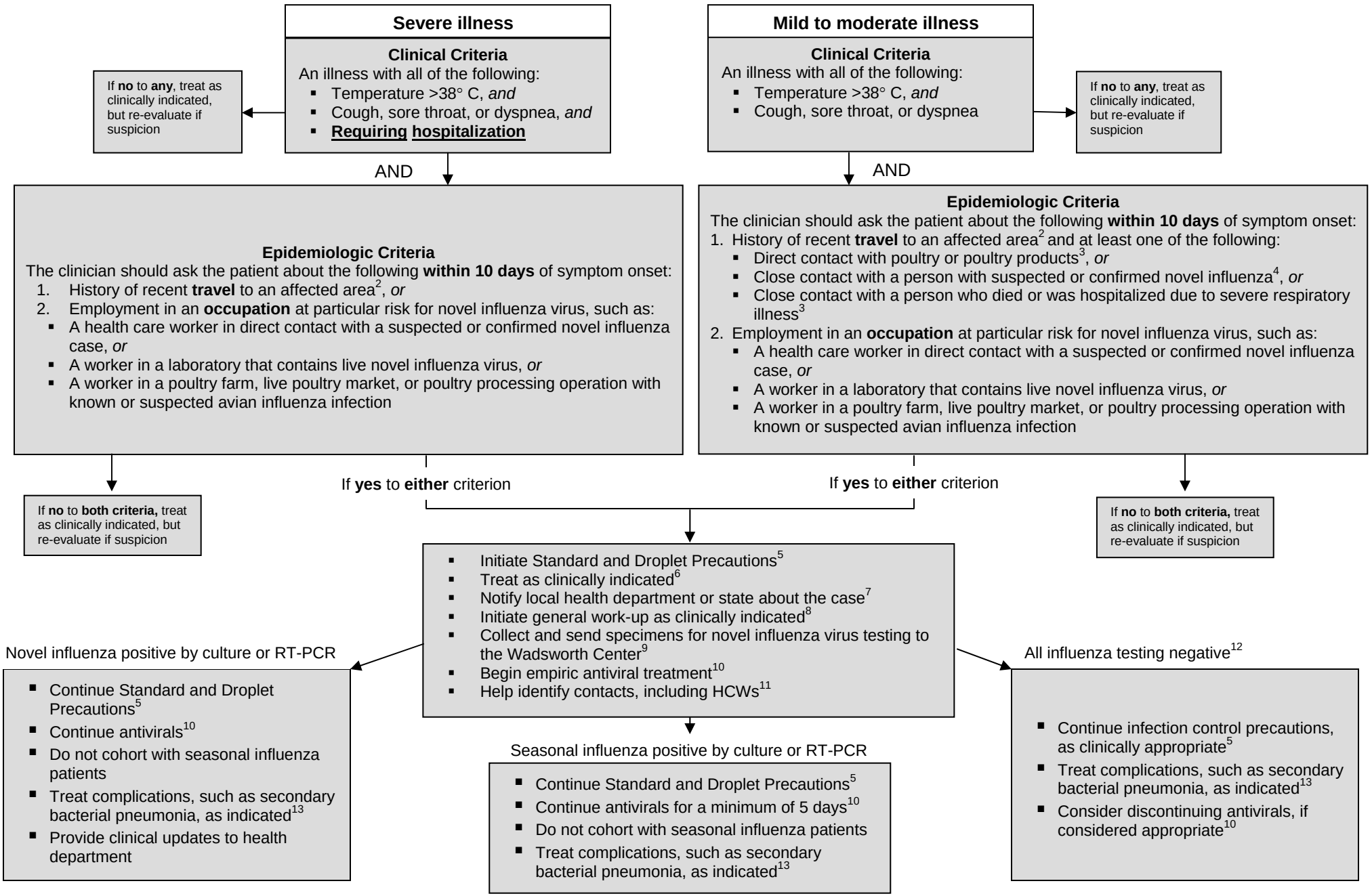
5. Tissues used by the ill patient should be placed in a bag and disposed of with other household waste. Consider placing a bag for this purpose at the bedside.
6. Environmental surfaces in the home should be cleaned using normal procedures.

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Appendix 5-E

Case Detection and Clinical Management during the Interpandemic and Pandemic Alert Periods

Situation: No human cases of novel influenza are present in the community. Human cases might be present in another country or another region of the United States.



Footnotes to Appendix E:

1. Further evaluation and diagnostic testing should also be considered for outpatients with strong epidemiologic risk factors and mild or moderate illness. (See Appendix B).

2. Updated information on areas where novel influenza virus transmission is suspected or documented is available on the CDC website at www.cdc.gov/travel/other/avian _flu_ah5n1_031605.htm and on the WHO website at www.who.int/en/.

3. For persons who live in or visit affected areas, close contact includes touching live poultry (well-appearing, sick or dead) or touching or consuming uncooked poultry products, including blood. For animal or market workers, it includes touching surfaces contaminated with bird feces. In recent years, most instances of human infection with a novel influenza A virus having pandemic potential, including influenza A (H5N1), are thought to have occurred through direct transmission from domestic poultry. A small number of cases are also thought to have occurred through limited person-to-person transmission or consumption of uncooked poultry products. Transmission of novel influenza viruses from other infected animal populations or by contact with fecally contaminated surfaces remains a possibility. These guidelines will be updated as needed if alternate sources of novel influenza viruses are suspected or confirmed.

4. Close contact includes direct physical contact, or approach within 3 feet (1 meter) of a person with suspected or confirmed novel influenza.

5. Standard and Droplet Precautions should be used when caring for patients with novel influenza or seasonal influenza (Appendix I and Section 4, Infection Control). Information on infection precautions that should be implemented for all respiratory illnesses (i.e., Respiratory Hygiene/Cough Etiquette) is provided at: www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm

6. Hospitalization should be based on all clinical factors, including the potential for infectiousness and the ability to practice adequate infection control. If hospitalization is not clinically warranted, and treatment and infection control is feasible in the home, the patient may be managed as an outpatient. The patient and his or her household should be provided with information on infection control procedures to follow at home (Appendix C). The patient and close contacts should be monitored for illness by local public health department staff.

7. Guidance on how to report suspected cases of novel influenza is provided in Section 2, Surveillance and Laboratory Testing.

8. The general work-up should be guided by clinical indications. Depending on the clinical presentation and the patient's underlying health status, initial diagnostic testing might include:
   - Pulse oximetry
   - Chest radiograph
   - Complete blood count (CBC) with differential
   - Blood cultures
   - Sputum (in adults), tracheal aspirate, pleural effusion aspirate (if pleural effusion is present) Gram stain and culture
   - Antibiotic susceptibility testing (encouraged for all bacterial isolates)
   - Multivalent immunofluorescent antibody testing or PCR of nasopharyngeal aspirates or swabs for common viral respiratory pathogens, such as influenza A and B, adenovirus, parainfluenza viruses, and respiratory syncytial virus, particularly in children

- In adults with radiographic evidence of pneumonia, *Legionella* and pneumococcal urinary antigen testing
- If clinicians have access to rapid and reliable testing (e.g., PCR) for *M. pneumoniae* and *C. pneumoniae*, adults and children <5 yrs with radiographic pneumonia should be tested.
- Comprehensive serum chemistry panel, if metabolic derangement or other end-organ involvement, such as liver or renal failure, is suspected

See Appendix B for additional details.

9. Guidelines for novel influenza virus testing can be found in **Section 2**. All of the following respiratory specimens should be collected for novel influenza A virus testing: nasopharyngeal swab; nasal swab, wash, or aspirate; throat swab; and tracheal aspirate (for intubated patients), stored at 4°C in viral transport media; and acute and convalescent serum samples.

10. Strategies for the use of antiviral drugs are provided in **Section 3**.

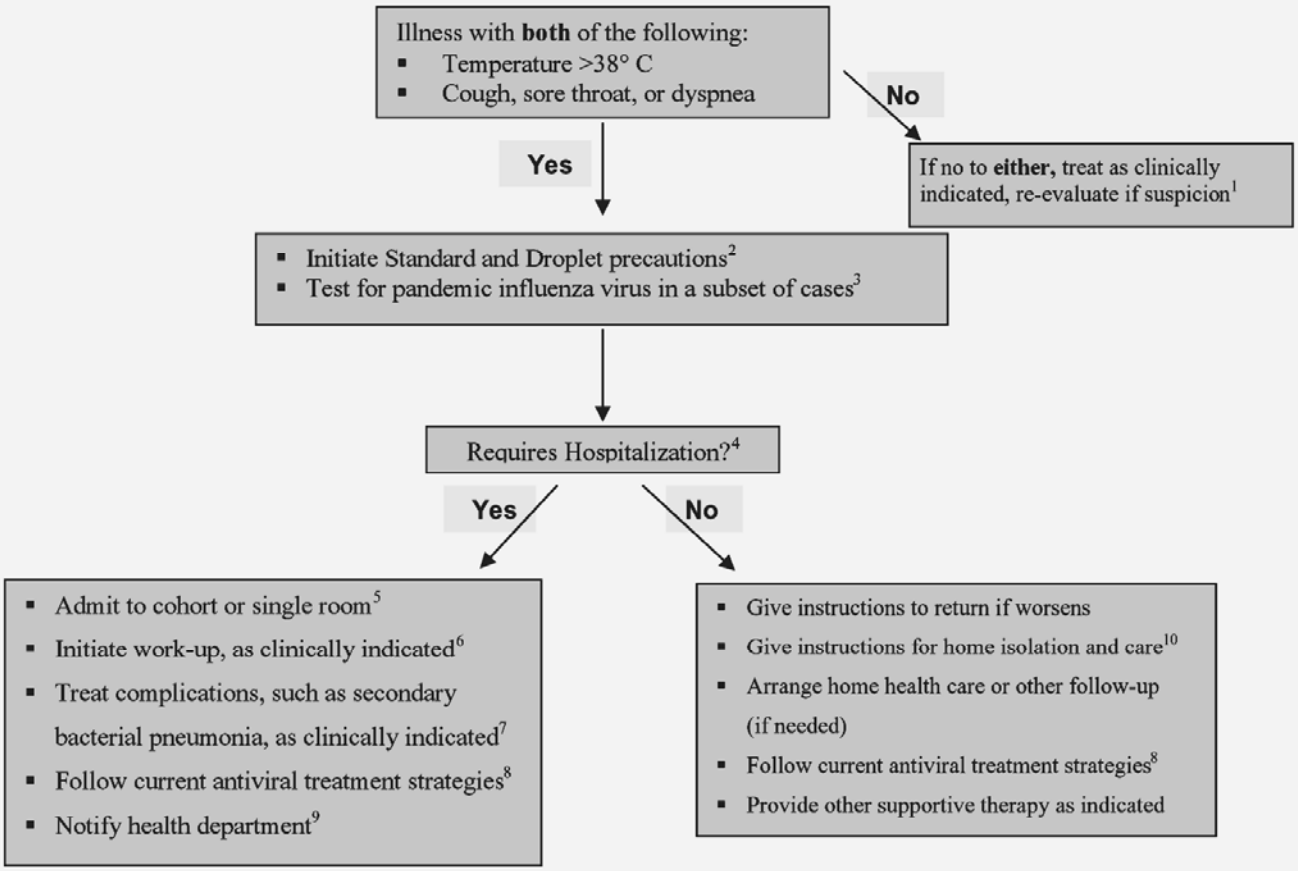
11. Guidelines for the management of contacts in a healthcare setting are provided in **Section 4**.

12. Given the unknown sensitivity of tests for novel influenza viruses, interpretation of negative results should be tailored to the individual patient in consultation with the local health department. Novel influenza directed management may need to be continued, depending on the strength of clinical and epidemiologic suspicion. Antiviral therapy and isolation precautions for novel influenza may be discontinued on the basis of an alternative diagnosis. The following criteria may be considered for this evaluation:
    - Absence of strong epidemiologic link to known cases of novel influenza
    - Alternative diagnosis confirmed using a test with a high positive-predictive value
    - Clinical manifestations explained by the alternative diagnosis

13. Guidance on the evaluation and treatment of suspected post-influenza community-associated pneumonia is provided in Appendix L.

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Case Detection and Clinical Management during the Pandemic Period



Situation: Pandemic influenza viruses are circulating in the community

Footnotes to Appendix 5-F:

1. Antiviral therapy and isolation precautions for pandemic influenza should be discontinued on the basis of an alternative diagnosis only when both the following criteria are met:
   - Alternative diagnosis confirmed using a test with a high positive-predictive value, and
   - Clinical manifestations entirely explained by the alternative diagnosis

2. Standard and Droplet Precautions should be used when caring for patients with novel influenza or seasonal influenza (Appendix 5-I and Section 4, Infection Control). Information on infection precautions that should be implemented for all respiratory illnesses (i.e., Respiratory Hygiene/Cough Etiquette) is provided at: www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm

3. Guidance on laboratory testing during the Pandemic Period can be found in Section 2, Surveillance and Laboratory Testing. Generally, specimens should include respiratory samples (e.g., nasopharyngeal wash/aspirate; nasopharyngeal, nasal or oropharyngeal swabs, or tracheal aspirates) stored at 4°C in viral transport media.

   Routine laboratory confirmation of clinical diagnoses will be unnecessary as pandemic activity becomes widespread in a community. CDC will continue to work with state health laboratories to conduct virologic surveillance to monitor antigenic changes and antiviral resistance in the pandemic virus strains throughout the Pandemic Period.

4. The decision to hospitalize should be based on a clinical assessment of the patient and the availability of hospital beds and personnel.

5. Guidelines on cohorting can be found in Section 4, Infection Control. Laboratory confirmation of influenza infection is recommended when possible before cohorting patients.

6. The general work-up should be guided by clinical indications. Depending on the clinical presentation and the patient's underlying health status, initial diagnostic testing might include:
   - Pulse oximetry
   - Chest radiograph
   - Complete blood count (CBC) with differential
   - Blood cultures
   - Sputum (in adults) or tracheal aspirate Gram stain and culture
   - Antibiotic susceptibility testing (encouraged for all bacterial isolates)
   - Multivalent immunofluorescent antibody testing of nasopharyngeal aspirates or swabs for common viral respiratory pathogens, such as influenza A and B, adenovirus, parainfluenza viruses, and respiratory syncytial virus, particularly in children
   - In adults with radiographic evidence of pneumonia, *Legionella* and pneumococcal urinary antigen testing
   - If clinicians have access to rapid and reliable testing (e.g., PCR) for *M. pneumoniae* and *C. pneumoniae*, adults and children <5 yrs with radiographic pneumonia should be tested.
   - Comprehensive serum chemistry panel, if metabolic derangement or other end-organ involvement, such as liver or renal failure, is suspected

   See Appendix 5-B for additional details.

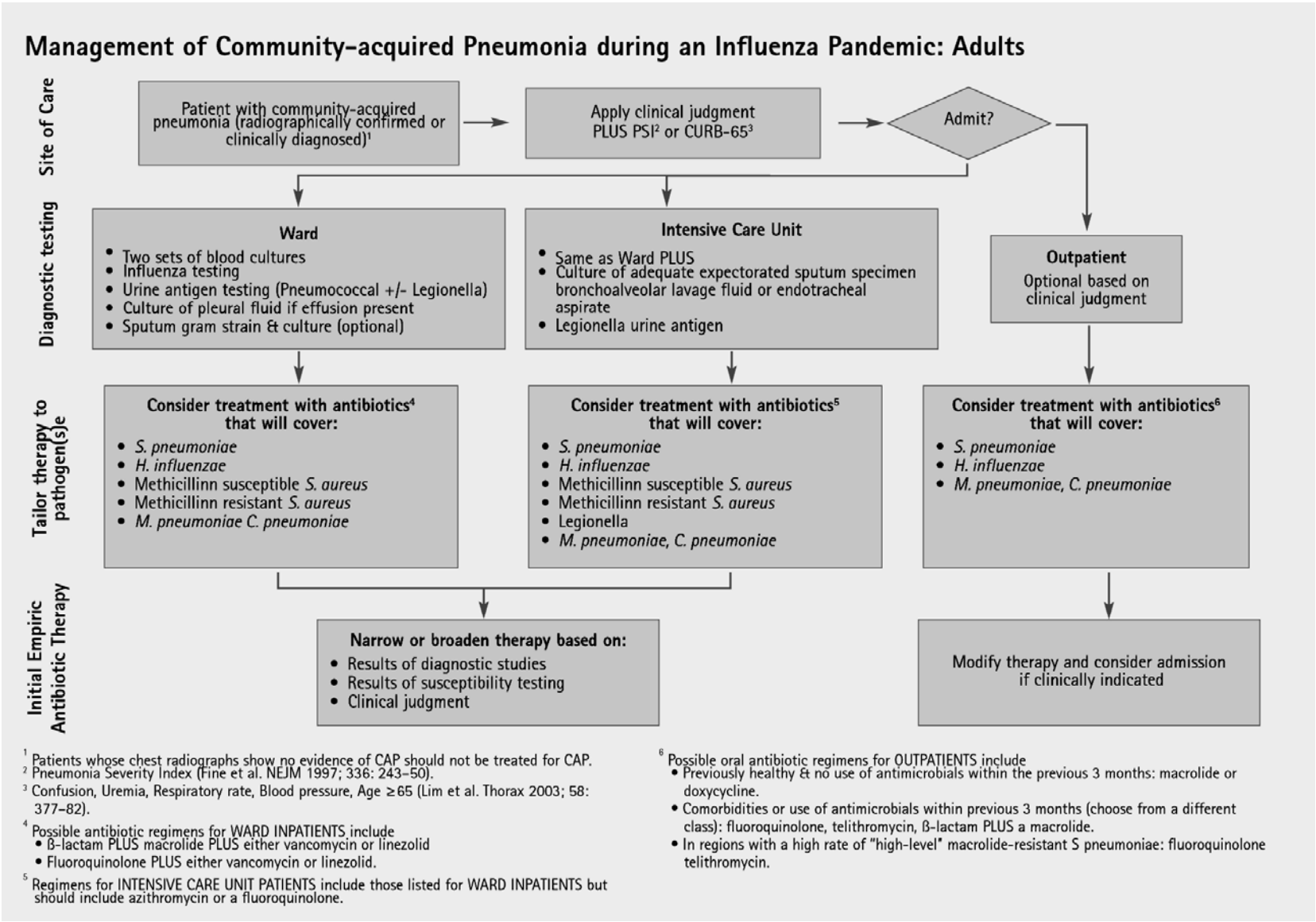
7. Guidance on the evaluation and treatment of community acquired pneumonia and suspected post-influenza community-acquired bacterial pneumonia are provided in Appendix 5-L.

8. Strategies for the use of antiviral drugs are provided in Section 7, Antiviral Medication Procurement, Distribution, and Use.

9. Guidance on the reporting of pandemic influenza cases is provided in Section 2, Surveillance and Laboratory Testing.

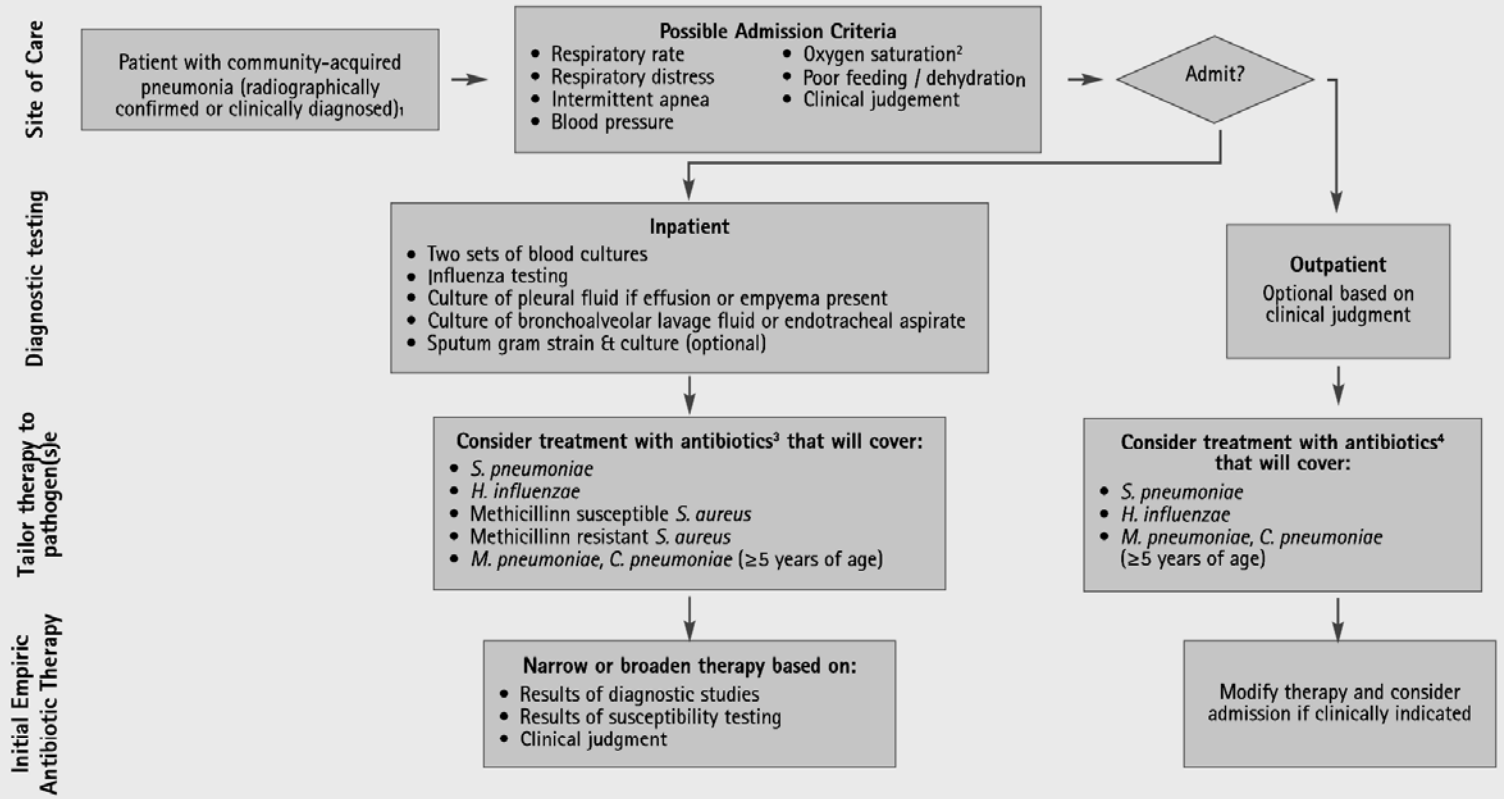
10. Patients with mild disease should be provided with standardized instructions on home management of fever and dehydration, pain relief, and recognition of deterioration in status. Patients should also receive information on infection control measures to follow at home (Appendix 5-D). Patients cared for at home should be separated from other household members as much as possible. All household members should carefully follow recommendations for hand hygiene, and tissues used by the ill patient should be placed in a bag and disposed of with other household waste. Infection within the household may be minimized if a primary caregiver is designated; ideally, someone who does not have an underlying condition that places them at increased risk of severe influenza disease. Although no studies have assessed the use of masks at home to decrease the spread of infection, using a surgical or procedure mask by the patient or caregiver during interactions may be beneficial. Separation of eating utensils for use by a patient with influenza is not necessary, as long as they are washed with warm water and soap. Additional information on measures to limit the spread of pandemic influenza in the home and community can be found in Section 8, Travel-Related Disease Control and Community Containment.

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005



Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

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



[1] Although chest radiography is not necessary to make the diagnosis in all pediatric patients with CAP, patients who do undergo chest radiography and whose radiographs show no evidence of CAP should not be treated for CAP.

[2] Pulse oximetry should be performed for all children hospitalized with CAP.

[3] Possible antibiotic regimens for INPATIENTS include:
- Children <5 years of age: ß-lactam (e.g. Ampicillin, Amoxicillin, Amoxicillin/clavulanic acid, 3rd generation cephalosporin [ceftazidine, ceftriazone]) PLUS either vancomycin or linezolid.
- Children ≥5 years of age: ß-lactam PLUS macrolide PLUS either vancomycin or linezolid.

[4] Possible oral antibiotic regimens for OUTPATIENTS include:
- Children <5 years of age: ß-lactam (e.g. Amoxicillin, Amoxicillin/clavulanic acid).
- Children ≥5 years of age: ß-lactam (e.g. Amoxicillin, Amoxicillin/clavulanic acid) or a macrolide depending on clinical severity. M. pneumoniae & C. pneumoniae generally present with less severe illness than S. pneumoniae or H. influenza.

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Pandemic Influenza Infection Control Guidance for Healthcare Providers

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; between patient contacts. Hand hygiene includes both handwashing with either plain or antimicrobial soap and water and 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 microbiocidal activity, reduced drying of the skin, and convenience.
Personal protective equipment (PPE) • Gloves • Gown • Face/eye protection (e.g., surgical or procedure mask and goggles or a face shield)	• For touching blood, body fluids, secretions, excretions, and contaminated items; for touching mucous membranes and nonintact skin • During procedures and patient-care activities when contact of clothing/exposed skin with blood/body fluids, secretions, and excretions is anticipated • During procedures and patient care activities likely to generate splash or spray of blood, body fluids, secretions, excretions
Safe work practices	Avoid touching eyes, nose, mouth, or exposed skin with contaminated hands (gloved or ungloved); avoid touching surfaces with contaminated gloves and other PPE that are not directly related to patient care (e.g., door knobs, keys, light switches).
Patient resuscitation	Avoid unnecessary mouth-to-mouth contact; use mouthpiece, resuscitation bag, 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 to environmental surfaces; wear gloves if visibly contaminated; perform hand hygiene after handling equipment.
Soiled linen and laundry	Handle in a manner that prevents transfer of microorganisms to oneself, others, and to environmental surfaces; wear gloves (gown if necessary) when handling and transporting soiled linen and laundry and perform hand hygiene
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; place used sharps in a puncture-resistant container.

Pandemic Influenza Infection Control Guidance for Healthcare Providers (cont.)

COMPONENT	RECOMMENDATIONS
STANDARD PRECAUTIONS (cont.)	
Environmental cleaning and disinfection	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).
Disposal of solid waste	Contain and dispose of solid waste (medical and non-medical) in accordance with facility procedures and/or local or state regulations; wear gloves when handling waste; wear gloves when handling waste containers and perform hand hygiene
Standard Respiratory Precautions Source control measures for persons with symptoms of a respiratory infection; implement at first point of encounter (e.g., triage/reception areas) within a healthcare setting.	Have the patient cover the mouth/nose when sneezing/coughing; use tissues and dispose in no-touch receptacle; 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) away from persons who are not ill.
DROPLET PRECAUTIONS	www.cdc.gov/ncidod/hip/ISOLAT/droplet_prec_excerpt.htm
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, and apply droplet precautions to all persons in the room. *During the early stages of a pandemic, infection with influenza should be laboratory-confirmed, if possible.
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 and laundry and dishes and eating utensils, and for cleaning/disinfection of environmental surfaces and patient care equipment, disposal of solid waste, and postmortem care.

Pandemic Influenza Infection Control Guidance for Healthcare Providers (cont.)

COMPONENT	
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.

Standard Precautions for home health care

Healthcare providers who enter homes where there is a person with an influenza-like illness should follow the recommendations for Standard and Droplet Precautions. Standard Precautions include performing hand hygiene and standard respiratory precautions, wearing gloves and gowns, using face/eye protection when needed; and following safe work practices.

Droplet Precautions for home health care

Healthcare providers who enter homes where there is a person with an influenza-like illness should follow the recommendations for Standard and Droplet Precautions. Droplet Precautions include all Standard Precautions plus separating the patient from others in the household as much as possible and wearing a surgical or procedure mask for patient interactions. Professional judgment should be used in determining whether to don a mask upon entry into the home or only on entering the patient's room. Factors to consider in this decision include the possibility that others in the household may be infectious and the extent to which the patient is ambulating within the home.

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Clinical Presentation and Complications of Seasonal Influenza

Although often quite characteristic, the clinical picture of seasonal influenza can be indistinguishable from illness caused by other respiratory infections. The frequent use of non-specific terms such as "flu" and "influenza-like illness" makes the clinical diagnosis of influenza even more indefinite. Even when the diagnosis of influenza is confirmed, management can be challenging, as influenza virus infection can result in subclinical infection, mild illness, uncomplicated influenza, or exacerbation of underlying chronic conditions to fulminant deterioration, and can result in a wide variety of complications.

This appendix provides a brief description of the common presentations and complications of seasonal human influenza. Novel and pandemic influenza viruses might, however, cause quite different clinical syndromes than seasonal influenza. For instance, seasonal influenza-related complications more commonly affect those at the extremes of age, whereas previous pandemics resulted in disproportionate morbidity and mortality in young and previously healthy adults. It will be essential to describe and disseminate the clinical features of novel or pandemic influenza cases as soon as they are identified. Appendix K includes a brief clinical summary of illnesses associated with previous influenza pandemics and with avian influenza A (H5N1) virus in humans.

Presentation

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

Influenza is difficult to distinguish from illnesses caused by other respiratory pathogens on the basis of symptoms alone. Fever and cough, particularly in combination, are modestly predictive of influenza in unvaccinated adults, as is the combination of fever, cough, headache, and pharyngitis in children. Other constitutional signs and symptoms,

such as chills, rigors, diaphoresis, and myalgias, are also suggestive. The positive predictive value of any clinical definition is strongly dependent on the level of influenza activity and the presence of other respiratory pathogens in the community.

Routine laboratory findings
No routine laboratory test results are specific for influenza. Leukocyte counts are variable, although thrombocytopenia and severe leukopenia have been described in fulminant cases. Leukocytosis of >15,000 cells/ml should raise suspicion for a secondary bacterial process. Comprehensive laboratory testing might reveal other influenza-related complications (see below).

Differential diagnosis
The fever and respiratory manifestations of seasonal influenza are not specific and can occur with several other pathogens, including respiratory syncytial virus (RSV), parainfluenza viruses, adenoviruses, human metapneumovirus, rhinoviruses, coronaviruses, and Mycoplasma pneumoniae. In contrast to influenza viruses, most of these pathogens do not usually cause severe disease, particularly in previously healthy adults. RSV and parainfluenza viruses can, however, lead to severe respiratory illness in young children and the elderly and should be considered in the differential diagnosis if circulating in the community. Even if an alternate etiology is determined, viral or bacterial co-infections can still be a possibility.

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

Complications

Groups at risk for complications of influenza
The following groups are currently recognized by the Advisory Committee on Immunization Practices (ACIP) to be at higher risk for complications of seasonal influenza (e.g., hospitalization; death) compared to healthy older children and younger adults:[2]

- Persons aged 65 years
- Residents of nursing homes and other chronic-care facilities that house persons of any age who have chronic medical conditions
- Adults and children who have chronic disorders of the pulmonary or cardiovascular systems, including asthma
- Adults and children who required regular medical follow-up or hospitalization during the previous year because of chronic metabolic diseases (including

diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression (including immunosuppression caused by medications or by infection with human immunodeficiency virus [HIV])
- Children and adolescents (aged 6 months–18 years) who are receiving long-term aspirin therapy (and are therefore at risk for Reye syndrome)
- Pregnant women
- All children aged <2 years
- All persons with conditions that can compromise respiratory function or the handling of respiratory secretions, or that can increase the risk of aspiration

Excluding the last group, in 2003 approximately 85 million persons in the United States belonged to one or more of these target groups.

Types of influenza complications

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

Secondary bacterial pneumonia, another common complication, is characterized by an initial improvement in influenza symptoms over the first few days followed by a return of fever, along with a productive cough and pleuritic chest pain. Findings include lobar consolidation on chest x-ray and, in adults, sputum smears positive for leukocytes and bacteria. The most commonly isolated pathogens are *Streptococcus pneumoniae, Staphylococcus aureus,* group A *Streptococcus,* and *Haemophilus influenzae*.

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

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

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

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

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

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

Reye syndrome is another serious neurologic complication associated with influenza. It is characterized by an acute encephalopathy combined with hepatic failure in the absence of inflammation in either the brain or the liver. Hepatic involvement includes fatty infiltration, hypoglycemia, and hyperammonemia, whereas neurologic manifestations include cerebral edema, delirium, coma, and respiratory arrest. Reye syndrome was found to be associated with the use of aspirin in children; its incidence has decreased dramatically since the 1980s after aspirin use was discouraged in children. Seasonal influenza can be associated with systemic complications, such as sepsis and shock. Sepsis caused by invasive co-infection with *Staphylococcus aureus,* including methicillin-

resistant *S. aureus* (MRSA), or other bacteria, such as *Neisseria meningitidis* has been reported. Toxic shock syndrome without bacterial co-infection has also been reported.

[2] Prevention and control of influenza: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR 2005;54:1-40 www.cdc.gov/mmwr/pdf/rr/rr54e713.pdf.

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Clinical Presentation and Complications of Illnesses Associated with Avian Influenza A (H5N1) and Previous Pandemic Influenza Viruses

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

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

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

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

Reports published from Vietnam and Thailand describe the early confirmed H5N1 cases from this outbreak. These reports characterize human illness with avian influenza A (H5N1) virus infection as a primarily respiratory febrile illness that progresses to severe disease in a high proportion of cases. Among 10 Vietnamese patients,[3] all were previously healthy children or young adults (mean age, 13.7 years) who presented to medical attention with fever, cough, and dyspnea. None of the patients had other respiratory symptoms, such as sore throat or rhinorrhea, but seven developed diarrhea. Significant lymphopenia was observed in all 10 cases, and moderate thrombocytopenia occurred. All 10 had marked abnormalities on chest radiograph, and

eight patients—all of whom eventually died—required mechanical ventilation for respiratory failure. Respiratory cultures suggested bacterial pneumonia in two patients.

Of 12 cases described from Thailand,[4] seven were aged <14 years, and all but one were previously healthy. All of the patients developed fever, cough, and dyspnea, and six patients were reported with myalgia and diarrhea. Decreased leukocyte counts were reported in seven cases, thrombocytopenia occurred in four cases, and increased serum liver enzymes were found in eight.

All patients had negative blood cultures. They all had abnormal chest radiographs; nine developed respiratory failure with ARDS, whereas five developed cardiac failure, four had renal failure, and eight ultimately died. In the Vietnamese and Thai cases, respiratory deterioration occurred a median of 5 days after symptom onset, but the range was quite wide.

Whereas all patients described above presented with pulmonary symptoms, subsequently published case reports suggest that other clinical syndromes can occur with H5N1 infection.[5,6,7] In one report, a 39-year-old female with confirmed H5N1 from Thailand was initially admitted with symptoms of fever, vomiting, and diarrhea, and was found to have significant lymphopenia. She developed shortness of breath approximately 12 days after illness onset and soon progressed to ARDS and death. A 4-year-old male from Vietnam presented for medical attention with severe diarrhea, developed acute encephalitis with coma, and died soon thereafter. Although avian influenza A (H5N1) was later detected in throat, stool, serum, and cerebrospinal fluid specimens, the patient had no respiratory symptoms at presentation. This patient's 9-year-old sister died of a similar illness a few days before his illness began, but no H5N1 testing was performed. Asymptomatic H5N1 infection, detected by seroconversion, has been reported. Updated information on avian influenza can be found at http://www.who.int/csr/disease/avian_influenza/en/.

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

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

primary viral pneumonia, was notably increased in healthy young adults during the 1957–58 pandemic, particularly in pregnant women.

Implications for the next pandemic The characteristic clinical features of the next influenza pandemic cannot be predicted. It is reasonable to assume that most affected persons will have the typical features of influenza (e.g., fever, respiratory symptoms, myalgia, malaise). However, past pandemics have varied considerably with regard to severity and associated complications. Illnesses caused by novel influenza viruses such as avian influenza A (H5N1) might predict the potential characteristics of pandemic influenza, but H5N1 has not adapted to spread easily among humans, and its presentation and severity might change as the virus evolves. Even as the next pandemic begins and spreads, the characteristic features might change, particularly if successive waves occur over several months. Given this potential for a dynamic clinical picture, it will be important for clinicians and public health partners to work together to disseminate updated and authoritative information to the healthcare community on a regular basis.

[3] Tran TH, Nguyen TL, Nguyen TD, Luong TS, Pham PM, Nguyen VC, et al. Avian influenza A (H5N1) in 10 patients in Vietnam. N Engl J Med. 2004;350:1179-88.

[4] Chotpitayasunondh T, Ungchusak K, Hanshaoworakul W, Chunsuthiwat S, Sawanpanyalert P, Kijphati R, et al. Human disease from influenzaA (H5N1), Thailand, 2004. Emerg Infect Dis. 2005;11:201-9

[5] de Jong MD, Bach VC, Phan TQ, Vo MH, Tran TT, Nguyen BH, et al. Fatal avian influenza A (H5N1) in a child presenting with diarrhea followed by coma. N Engl J Med. 2005;352:686-91.

[6] Apisarnthanarak A, Kitphati R, Thongphubeth K, Patoomanunt P, Anthanont P, Auwanit W, et al. Atypical avian influenza (H5N1). Emerg Infect Dis 2004;10:1321-4.

[7] Beigel JH, Farrar J, Hayden FG, Hyer R, de Jong MD, Lochindrat S, et al. Avian influenza A (H5N1) infection in humans. N Eng J Med. 2005 Sep 29;353(13):1374-85.

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Guidelines for Management of Community-Acquired Pneumonia, Including Post-Influenza Community-Acquired Pneumonia

Rationale

Post-influenza bacterial community-acquired pneumonia will likely be a common complication during the next pandemic and might affect approximately 10% of persons with pandemic influenza, based on data from previous influenza pandemics. Assuming that pandemic influenza will affect about 15%–35% of the U.S. population, approximately 4.4 to 10.2 million cases of post-influenza bacterial community-acquired pneumonia could occur. Post-influenza bacterial community-acquired pneumonia often presents as a return of fever, along with a productive cough and pleuritic chest pain, after an initial improvement in influenza symptoms over the first few days. Findings include lobar consolidation on chest x-ray and, in adults, sputum smear positive for leukocytes and bacteria. As with other bacterial infections, leukocytosis with increased immature forms may be present, but this finding is neither sensitive nor specific. The most common etiologies of post-influenza bacterial pneumonia are *Streptococcus pneumoniae*, *Staphylococcus aureus*, group A *Streptococcus*, and *Haemophilus influenzae*. Primary viral pneumonia, with abrupt onset and rapid progression, is more common than bacterial pneumonia in children, yet rare in adults. Physical and radiologic findings in viral pneumonia are consistent with interstitial and/or alveolar disease and include bilateral inspiratory crackles and diffuse infiltrates. Mixed viral-bacterial pneumonia is slightly more common than primary viral pneumonia, but they are often indistinguishable. Bacterial pathogens in mixed infections are similar to those found in secondary bacterial pneumonias. Droplet and Standard Precautions are currently recommended for community-acquired pneumonia of bacterial etiology.[8]

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

The guidelines in this appendix are therefore designed to assist clinicians in managing patients with community-acquired pneumonia, including post-influenza bacterial community-acquired pneumonia, in a setting of high patient volume and limited clinical resources, where the pressure to treat empirically will likely be even greater than during the Interpandemic Period. For adults, the guidance draws heavily from the current draft guidelines for the management of CAP developed jointly by the Infectious Diseases Society of America (IDSA) and the American Thoracic Society (ATS).[9,10] For children, the guidance incorporates recommendations from the British Thoracic Society (BTS),[11] a published review,[12] and expert opinion.

Prevention

Efforts to maximize vaccination coverage against *Streptococcus pneumoniae* is an important component of post-influenza bacterial community-acquired pneumonia prevention during the Interpandemic, Pandemic Alert, and Pandemic Periods. Current guidelines on the use of the 23-valent pneumococcal polysaccharide vaccine among adults and the 7-valent pneumococcal conjugate vaccine among children are available.[13,14]

Site of Care: Inpatient versus Outpatient

Adults

- IDSA-ATS draft guidelines recommend the use of severity scores, such as the Pneumonia PORT Severity Index (PSI) and the CURB-65 system,[15,16] to determine which patients can be safely treated as outpatients (Tables 2–5). The use of these or other similar systems could be extremely important during the next pandemic, as hospital beds will be in short supply. However, these systems should be used to supplement rather than replace the judgment of the individual clinician.

Children

- Current guidelines provide indicators for hospitalization of children with CAP. For infants, the indications include temperature >38.5 C, respiratory rate (RR) >70 breaths per minute, chest retractions (indrawing), nasal flaring, hypoxia, cyanosis, intermittent apnea, grunting, and poor feeding. Indications for hospitalization among older children include temperature >38.5 C, RR >50, chest retractions, nasal flaring, hypoxia, cyanosis, grunting, and signs of dehydration.

As with pandemic influenza, the decision to hospitalize for post-influenza bacterial community-acquired pneumonia during the Pandemic Period will rely on the physician's clinical assessment of the patient as well as availability of personnel and hospital resources. Although an unstable patient will be considered a high priority for admission, patients with certain high-risk conditions (see Appendix J) might also warrant special attention. Home management with follow-up might be appropriate for well-appearing young children with fever alone.

Diagnostic Testing

Adults

Generally, the etiologies associated with CAP during the Interpandemic Periods will continue to occur during a pandemic. Familiarity with the appropriate use of available diagnostic tests is therefore a key feature of clinical preparedness.

- Draft IDSA-ATS guidelines recommend obtaining appropriate specimens for etiologic diagnosis whenever such an etiology would alter clinical care. Given that the most common etiologies of post-influenza bacterial community-acquired pneumonia—*S. pneumoniae* and *S. aureus*, including community-acquired methicillin-resistant *S. aureus* (CA-MRSA)—are treated differently, diagnostic

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

Children

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

Antibiotic Treatment

Adults and children

Antibiotics, particularly those needed to treat CAP, will likely be in short supply during the Pandemic Period. Therefore, use of empiric therapy for all persons with post-influenza bacterial community-acquired pneumonia will likely not be feasible. Antimicrobial therapy will have to be driven by culture and susceptibility testing of appropriate clinical specimens and by awareness of local antibiotic susceptibility patterns. (See Appendix 5-E and 5-F)

- A history of preceding influenza-like illness, especially when pandemic influenza is circulating in the community, might help to screen patients.
- Empiric therapy in adults should be directed toward the most likely etiologies of post-influenza bacterial community-acquired pneumonia.
- Concurrent antiviral treatment might also be beneficial, depending on the timing and presentation of illness (see Section 6).

Table 1. Pneumonia Port Severity Index (PSI) Calculation

Patient Characteristic	Points Assigned
Demographic Factor	
Age	
Male	Number of years
Female	Number of years−10
Nursing home resident	+10
Comorbid illnesses	
Neoplastic disease	+30
Liver disease	+20
Congestive heart failure	+10
Cerebrovascular disease	+10
Renal disease	+10
Physical examination finding	
Altered mental status	+20
Respiratory rate >30 breaths/minute	+20
Systolic blood pressure <90 mm Hg	+20
Temperature <35°C or >40°C	+15
Pulse >125 beats/minute	+10
Laboratory and /or radiographic finding	
Arterial pH <7.35	+30
Blood urea nitrogen >30 mg/dl	+20
Sodium <130mmol/l	+20
Glucose >250 mg/dl	+10
Hematocrit <30%	+10
Hypoxemia <90% by pulse oximetry OR <60mm Hg by arterial blood gas	+10
Pleural effusion on baseline radiograph **PPP**	+10

Table 2. Pneumonia Severity Index Risk Classification

PSI Risk Class	Characteristics and Points	Recommended Site of Care
I	Age >50 years + no comorbid conditions, normal range vital signs, normal mental status	Outpatient
II	<70	Outpatient
III	71–90	Outpatient / Brief inpatient
IV	91–130	Inpatient
V	>130	Inpatient

Table 3. CURB-65 Scoring System

Characteristic	Points
Confusion[1]	+1
Urea >7mmol/l (20mg/dl)	+1
Respiratory rate >30 breaths per minute	+1
Blood pressure (Systolic <90 or diastolic <60 mm Hg)	+1
Age >65 years	+1

[1] Based on a specific mental test or disorientation to person, place, or time.

Table 4. Recommended Site of Care Based on CURB-65 System

Number of Points	Recommended Site of Care
0–1	Outpatient
2	Admit to medical ward
3–5	Admit to medical ward or ICU

[8] Centers for Disease Control and Prevention. Guidelines for preventing health-care-associated pneumonia, 2003 recommendations of CDC and the Healthcare Infection Control Practices Advisory Committee. Respir Care. 2004;49(8):926-39.

[9] Mandell LA, Bartlett JG, Dowell SF, File TM Jr, Musher DM, Whitney C; Infectious Diseases Society of America. Update of practice guidelines for the management of community-acquired pneumonia in immunocompetent adults. Clin Infect Dis. 2003; 37(11):1405-33.

[10] Niederman MS, Mandell LA, Anzueto A, Bass JB, Broughton WA, Campbell GD, et al. American Thoracic Society. Guidelines for the management of adults with community-acquired pneumonia. Diagnosis, assessment of severity, antimicrobial therapy, and prevention. Am J Respir Crit Care Med. 2001;163(7):1730-54.

[11] British Thoracic Society Standards of Care Committee. British Thoracic Society guidelines for the management of community acquired pneumonia in childhood. Thorax. 2002;57(suppl 1):i1-24..

[12] McIntosh, K. Community-acquired pneumonia in children. N Engl J Med. 2002;346:429-37.

[13] Prevention of pneumococcal disease among infants and young children: recommendations of the Advisory Committee on Immunization Practices. MMWR Morb Mortal Wkly Rep. 2000;49(RR-9).

[14] CDC. Prevention of pneumococcal disease: recommendations of the Advisory Committee on Immunization Practices (ACIP). MMWR MorbMortal Wkly Rep. 1997;46(RR-8).

[15] Fine MJ, Auble TE, Yealy DM, Hanusa BH, Weissfeld LA, Singer DE, et al. A prediction rule to identify low-risk patients with community-acquired pneumonia. *N Engl J Med*. 1997;336(4):243-50.

[16] Lim WS, van der Eerden MM, Laing R, Boersma WG, Karalus N, Town GI, et al. Defining community acquired pneumonia severity on presentation to hospital: an international derivation and validation study. Thorax. 2003;58(5):377-82.

Source: U.S. Department of Health and Human Services. HHS Pandemic Plan. November 2005

Section 6: Vaccine Procurement, Distribution, and Use

I. Overview

II. Objectives

III. Prioritization

IV. Vaccine Procurement and Distribution

V. Vaccine Safety Monitoring

VI. Data Collection

VII. Activities by Pandemic Period

Appendices:

6-A: Vaccine Priority Group Recommendations
6-B: Mass Clinic Planning
6-C: Vaccine and Antiviral Medication Procurement

I. Overview

Once available, a vaccine against the circulating pandemic virus strain will be a major focus of pandemic response efforts. Ensuring rapid, efficient, and equitable distribution of vaccine is central to pandemic planning. Vaccine will be key to reducing the morbidity and mortality resulting from the pandemic, and to minimizing social disruption by maintaining essential services. It is not known how quickly the pandemic vaccine will become available, and supply is likely to be limited during the early stage of the pandemic. Furthermore, it is likely that two doses of vaccine will be required to achieve a protective response in the vaccinee. Therefore, when vaccine becomes available it is essential that it be distributed in an equitable and consistent manner across New York State.

A limited amount of avian influenza A (H5N1) vaccine is being stockpiled and will be considered for early use in the event of an H5N1 pandemic. Development of vaccines against other strains with pandemic potential is also being considered. A monovalent vaccine directed against the circulating pandemic virus strain of influenza should begin to be available within 4-6 months after identification of the new pandemic virus strain. The number of persons who may be protected by vaccination depends on the manufacturing capacity, the amount of antigen per dose needed for a protective immune response, and the number of doses required.

The Department of Health and Human Services (DHHS) and the National Vaccine Advisory Committee (NVAC), in cooperation with the CDC and the Advisory Committee on Vaccine Practices (ACIP), have begun work to provide guidance on prioritization during a pandemic. The categories that have been specified are included in this plan in Appendix 6-A. Any priority groups established during the interpandemic period will have to be reassessed, and possibly altered, as soon as epidemiologic data on the specific pandemic virus becomes available.

Two ongoing activities engaged in by the NYSDOH, local health departments and health care partners are essential for pandemic preparedness. These are the annual influenza vaccination campaigns and emergency preparedness planning. The strength of the annual influenza vaccination program should improve the success of the pandemic influenza vaccination program. Higher annual vaccination rates will foster increased familiarity with and confidence in influenza vaccines, increased immunization manufacturing capacity, and strengthened distribution channels. In addition, the work already done on developing plans for emergency mass distribution of medical supplies provides the basis for developing local pandemic vaccination plans. The promotion of the appropriate use of pneumococcal vaccine is also important so that vulnerable populations will be protected from pneumococcal pneumonia, a serious sequela to influenza infection.

This section provides recommendations on planning for the necessary elements of a pandemic vaccination program. Objectives specific to vaccine use are outlined and guidelines for prioritization are included. Also included are plans for vaccine procurement and distribution, vaccine safety monitoring, and data collection. Finally,

recommended activities for vaccine planning are described according to pandemic period. Guidelines for mass clinic planning can be found in Appendix 6-B.

II. Objectives

- Ensure efficient and equitable distribution of pandemic vaccine, according to priority groups;
- Determine the method by which the NYSDOH will review prioritization decisions during an influenza pandemic;
- Provide ongoing and timely monitoring of vaccine safety;
- Provide ongoing and timely monitoring of vaccine coverage.

III. Prioritization

During the initial stages of a pandemic, the supply of vaccine will most likely be limited, and the CDC will likely be providing epidemiologic information and guidelines for the prioritization of vaccine distribution and use. During the interpandemic period, the NYSDOH needs to have a plan for determining and vaccinating priority groups.

A. Priority Groups

A list of priority groups for receiving vaccination developed by NVAC and ACIP is provided in Appendix 6-A. The discussion of priority groups is ongoing and will be modified as needed. In particular, priority groups will be modified according to the epidemiology of the pandemic.

Groups who may be considered for vaccine prioritization include:

1. Those who maintain essential services (public safety and health care)
2. Those at high risk for contracting influenza during a pandemic (including those who would work in response to an outbreak of avian influenza).
3. Those at high risk for complications or death from the pandemic strain.
4. Those who are ill and hospitalized with influenza.

B. Prioritization Review by New York State

Guidelines for the establishment of priority groups that will be receiving vaccine have been developed by NVAC, ACIP, and other federal partners, and is provided in Appendix 6-A. For the purposes of this plan, New York State has included the federal guidance regarding the priority groups for vaccine; however, other alternatives are being considered. For example, New York State will assess whether or not critical infrastructure capacities that protect continuation of essential services, such as law enforcement, etc., have sufficient priority.

C. Pre-pandemic Vaccination

It is possible that some vaccine already developed will be available to vaccinate those in priority groups. The groups designated for pre-pandemic vaccine may be vaccinated in an earlier phase, perhaps during the pre-pandemic or pandemic alert phases. The priority groups for pre-pandemic vaccine may be different from the priority groups for pandemic vaccine.

IV. Vaccine Procurement and Distribution

The administration of vaccine will be central to a response to an influenza pandemic, although there may be significant morbidity and mortality in the period during which an effective vaccine is being developed and produced in sufficient quantities. The Federal government continues to work closely with vaccine manufacturers in the creation of vaccines that may be beneficial in combating likely pandemic strains of influenza. However, because of the uncertainties associated with predicting which strain will be the cause of a pandemic, and the time needed to produce vaccine in amounts great enough to have an impact, it is anticipated that there will be a period of several months before vaccine is available for administration.

It is assumed that the Federal government will control the supply of vaccine in the United States and that the states will be responsible for distribution of vaccine within their respective jurisdictions. In New York State, the Department of Health will take the lead in determining the distribution of vaccine to local health departments for administration to the public.

V. Vaccine Safety Monitoring

Monitoring for vaccine safety during a pandemic is important to assess the occurrence of adverse events and provide data regarding any risks of vaccination. Influenza vaccine, like all vaccines, occasionally causes local reactions at the site of injection and may cause mild systemic symptoms such as headache or fever. More severe systemic reactions generally are extremely rare. The safety profile of a pandemic vaccine may be different than that usually seen with the annual influenza vaccine.

A. Vaccine Efficacy

The benefit of vaccination is measured by determining vaccine efficacy. During a pandemic the determination of vaccine efficacy would most likely be the role of CDC. However, the NYSDOH may be asked or required to participate in efficacy studies. The NYSDOH may wish to conduct efficacy studies in the early stages of the pandemic when fewer individuals are being vaccinated and active surveillance is more practical. It is possible that accurate and complete efficacy data may not be

available until the later stages of the pandemic, depending on how much notice CDC and manufacturers have to develop a novel vaccine.

B. Contraindications

There are currently very few contraindications to vaccination against influenza. Vaccine should not be administered to persons with known anaphylactic hypersensitivity to eggs or other vaccine components as described in the package inserts.
In the setting of a pandemic desensitization may be an option for those with a history of anaphylaxis to egg products and with high risk for influenza or its complications. An alternative for prevention would be prophylaxis with an antiviral medication.

If the technology and methods used to manufacture the pandemic influenza vaccine are the same as those currently used, the same contraindications would exist. Providers are comfortable and familiar with these restrictions on the use of influenza vaccine. However, if a lethal strain of influenza is circulating, persons may be asked to take risks in regard to receiving vaccine that they might not take during a typical influenza season. Efforts must be made to educate all health care providers, vaccine administrators, and vaccine recipients on the potential risks of the particular pandemic vaccine when they become known. Clinical guidelines will need to be developed in regard to vaccination risk assessment and evaluation. Those at particular risk may need to be actively followed or monitored in a health care facility post vaccination.

The same contraindications that exist for the inactivated influenza vaccines apply to the recently licensed live attenuated vaccine (LAIV). The LAIV, however, is currently licensed only for healthy persons between the ages of 5 and 49 years of age who do not have a high risk medical condition. The recommendations include eligible health care workers who do not work with severely immunocompromised persons.

C. Vaccine Adverse Event Monitoring and Reporting

In the U.S., national surveillance for adverse events following immunization is routinely conducted through the Vaccine Adverse Event Reporting System (VAERS), which is managed jointly by the CDC and FDA. Events that may be associated with vaccination can be reported on paper forms, by telephone, or electronically by health care providers, patients, health departments, or vaccine manufacturers. Reports of serious adverse events are followed up to collect additional information for analysis to determine whether such events are reported more frequently than expected.

During a pandemic, VAERS would remain the major reporting mechanism, much as it was during the smallpox vaccination campaign. Adverse events (AEs) related

to pandemic influenza vaccination would likely be made reportable in NYS. The NYSDOH would require that all such adverse events be reported to the local health department of the county where the affected person resides utilizing the same reporting mechanism available for the reporting of other communicable diseases in the state. A NYSDOH physician would be designated as the Adverse Events Coordinator for the state, and would be responsible for ensuring that adverse events are reported to VAERS and followed up appropriately.

During a pandemic, vaccinees with concerns about a potential adverse event will be referred to their own health care provider or the local emergency department for medical evaluation. If a provider requires medical advice or support, he or she may call the medical director of their local health department or their designated medical regional resource center. There are 8 regional resource centers throughout the upstate area. Theses are medical centers with a complete selection of medical specialists that can care for and address adverse events. Physicians at the NYSDOH will be available for consultation on vaccine related adverse events, and can consult experts at the CDC if required.

During a pandemic, it is likely that VAERS will be supplemented by additional surveillance and studies to rapidly evaluate the safety of the vaccination program. Active surveillance for adverse events in a sample of vaccinees could be conducted by the use of self-report diary cards or by telephone interviews at specific intervals after vaccination. Existing databases can be analyzed to compare rates of medical visits and hospitalizations for person who are vaccinated with those who are not. Databases also can be analyzed to compare rates of illness and medical care shortly after vaccination with other time periods. Large scale safety studies are best conducted by national organizations, and once a campaign to vaccinate large numbers of individuals is underway, active surveillance will be impractical.

D. Contingency Planning for Investigational New Drug Use

It may be necessary to distribute unlicensed vaccine under the FDA's Investigational New Drug (IND) provisions. Unlicensed vaccine may be needed, for example, if pandemic spread is rapid and there is insufficient time to conduct standard vaccine efficacy.

IND provisions require strict inventory control and record-keeping, completion of a signed consent form from each vaccinee, and mandatory reporting of specified types of adverse events. IND provisions also require approval from Institutional Review Boards (IRBs) in hospitals, health departments, and other vaccine-distribution venues. The FDA regulations permit use of a national or "central" IRB.

As an alternative to IND use of an unapproved antiviral drug, HHS may utilize the drug product under Emergency Use Authorization procedures as described in the FDA draft guidance "Emergency Use Authorization of Medical Products" available on the FDA website at www.fda.gov/cber/gdlns/emeruse.pdf.

VI. Data Collection

To ensure optimal use of a new pandemic influenza vaccine, data will need to be collected on vaccine effectiveness, vaccine supply and distribution, vaccine coverage, and vaccine safety.

NYSDOH will provide a statewide data collection system to collect the following:

- Number of vaccine doses administered (first and second doses)
- Number of doses available
- Where doses were distributed
- Date administered
- Age of recipient
- Priority group of recipient
- County of recipient
- Zip code of recipient
- Adverse events

VII. Activities by Pandemic Period

1. Vaccine Prioritization

Interpandemic and Pandemic Alert Periods

State Health Department:

- Continue to enhance use of annual influenza vaccine.
- Continue to promote the use of pneumococcal vaccine.
- Identify a process for reviewing national recommendations for pandemic influenza vaccination and developing state specific modifications or refinements in priority groups, depending on local circumstances.
- Establish a committee to address prioritization issues.
- Continue the development of specific definitions for priority groups identifying occupational categories and sub-categories.
- Estimate the size of relevant priority groups.
- Develop a plan on how persons in priority groups would be identified at vaccination clinics and how vaccine would be most efficiently provided to those groups.
- Develop a plan to vaccinate the remainder of the population after priority groups have been vaccinated.
- Educate professional organizations and other stakeholders about the need for priority groups and the rationale for the groups currently recommended.
- Stockpile pre-pandemic vaccine if available.
- Establish a pre-pandemic vaccination plan.

- Continue to plan for the use and training of non-licensed persons to administer vaccine.
- Continue public health preparedness activities especially in regard to mass distribution of vaccines.

Local Health Departments:

- Continue to enhance the use of annual influenza vaccine.
- Continue to promote the use of pneumococcal vaccine.
- Continue to identify priority groups within the county.
- Identify hard to reach groups within the county that would require immunization.
- Develop a plan on how individuals in priority groups would be reached and vaccinated.
- Develop a plan on how to identify priority groups at vaccination clinics.
- Educate providers and other stakeholders about local health department plans for vaccination.
- Continue public health preparedness activities especially in regard to mass distribution of vaccines.
- Continue to plan for the use and training of non-licensed persons to administer vaccine.

Healthcare Partners:

- Enhance use of annual influenza vaccine.
- Enhance the use of pneumococcal vaccine.
- Identify those in priority groups within a practice or facility.
- Work with local health department staff in mass distribution planning.
- Continue public health preparedness activities especially in regard to mass distribution of vaccines.

Pandemic Period- After the first reports of pandemic influenza are confirmed and before a pandemic vaccine becomes available

State Health Department:

- Work with local health departments and health care partners to distribute, deliver, administer, and track pre-pandemic or stockpiled vaccines to designated priority groups, if available.
- Keep the healthcare and public health workforce up-to-date on projected timelines for availability of vaccines.
- Review and update modifications if any to recommendations on vaccinating priority groups.
- Make any revisions of priority groups needed and communicate the changes and their rationale to LHDs and health care partners.

Local Health Departments:

- Work with the NYSDOH to distribute, deliver, administer, and track pre-pandemic vaccine to designated priority groups.
- Keep providers and other health care partners informed about projected timelines for availability of vaccines.
- Communicate any changes in priority group designations to health care partners.
- Actively identify and locate priority groups in preparation for the availability of a vaccine.

Healthcare Partners:

- Work with LHDs to identify priority groups members.
- Communicate priority group designations and changes to patients and staff.
- Actively identify and locate priority groups in preparation for the availability of a vaccine.

Pandemic Period - After a vaccine becomes available

State Health Department:

- Work with LHDs and health care partners to distribute, deliver, administer, and track pandemic vaccine to priority groups.
- Continue to review and revise priority groups, and communicate changes and their rationale to LHDs and health care partners.
- Phase-in vaccination of the rest of the population after priority groups have been vaccinated.

Local Health Departments:

- Work with NYSDOH and health care partners to distribute, deliver, administer, and track pandemic vaccine to priority groups.
- Phase-in vaccination of the rest of the population after priority groups have been vaccinated.

Healthcare Partners:

- Work with LHDs to distribute, deliver, administer, and track pandemic vaccine to priority groups.
- Vaccinate the rest of the population after priority groups have been vaccinated.

2. Vaccine Procurement and Distribution

- See Appendix 6-C.

3. Vaccine Safety Monitoring

Interpandemic and Pandemic Alert Periods

State Health Department:

- Establish an adverse event monitoring system.
- Designate an adverse event coordinator.
- Monitor adverse events if pre-pandemic vaccine is used.
- Consider how vaccine efficacy studies would be conducted and coordinate within DOH, especially with researchers and Wadsworth laboratories.
- Disseminate information to LHDs and health care partners on the adverse event monitoring system.
- Identify those health care providers that would provide medical consultation on adverse events on the state level.
- Consider how the implementation of active surveillance would be done.
- Plan for the use of an IND or Emergency Use Authorization protocol is needed.

Local Health Departments:

- Establish an adverse event monitoring system based on the requirements of the statewide system.
- Identify which staff would be responsible for adverse event monitoring.
- Identify which staff would provide medical consultation for adverse events on the local level.
- Disseminate information on the adverse event monitoring system to local health care partners.
- Work with the NYSDOH to plan for IND or Emergency Use Authorization protocols.

Healthcare Partners:

- Establish an adverse event monitoring system within health care facilities and practices.
- Identify staff that would be responsible for adverse event monitoring.
- Identify staff that would be responsible for medical consultation for adverse events.
- Disseminate information on adverse event monitoring to staff.
- Work with NYSDOH and LHDs to plan for IND or Emergency Use Authorization protocols.

Pandemic Phase-Before and After a Vaccine is Available

State Health Department:

- Implement the adverse event monitoring system.
- Institute emergency regulations making pandemic vaccine adverse events reportable.
- Collect vaccine adverse event data from LHDs and providers.
- Conduct any vaccine efficacy or adverse events studies required by CDC or agreed upon within NYSDOH.
- Provide medical consultation for adverse events.
- Consult with CDC on adverse events as needed.
- Report all adverse events to VAERS.
- Update LHDs and providers on any new adverse events identified or any updates on the vaccine adverse event profile.
- Conduct active surveillance for adverse events as needed.
- Provided guidance to LHDs for case investigation of adverse events.
- Implementation of IND or Emergency Use Authorization protocols if needed.

Local Health Departments:

- Implement the adverse event monitoring system.
- Collect reports on adverse events from providers and patients, and provide the information to the NYSDOH.
- Conduct adverse event case investigations.
- Participate in vaccine efficacy or adverse event studies as needed.
- Provide medical consultation for local adverse events.
- Update health care partners on new adverse events or updates on the vaccine adverse event profile.
- Participate in active surveillance as needed.
- Implement IND or Emergency Use Authorization protocols if needed.

Healthcare Partners:

- Implement the adverse event monitoring system in health care facilities.
- Report all adverse events to LHD.
- Participate in adverse event case investigations.
- Provide medical consultation for vaccine adverse events in patients or health care facilities.
- Participate in active surveillance as needed.
- Implement IND or Emergency Use Authorization protocols as needed.

4. Data Collection

Interpandemic and Pandemic Alert Periods

State Health Department:

- Through the Data Management Workgroup develop a data collection system that can collect all required vaccine data elements.
- Ensure that the system can be used to supply required elements to CDC and calculate vaccine coverage and efficacy rates.
- Provide information on vaccine data collection to LHDs and health care partners.

Local Health Departments:

- Participate in the development of the vaccine data management system.
- Provide information on data collection to staff and health care partners.

Healthcare Partners:

- Participate in the development of the vaccine data management system.
- Provide information on vaccine data collection to facility and practice staff.

Pandemic Phase

State Health Department:

- Activate the data collection system.
- Add any new data elements identified in the course of the pandemic.
- Use the data collection system to aid in calculating vaccine efficacy or coverage rates.
- Provide technical assistance to LHDs and providers using the system.
- Collect data from LHDs and providers on vaccine efficacy and coverage and transmit to CDC at regular intervals as required.
- Calculate efficacy in and coverage of priority groups.

Local Health Departments:

- Activate and use the data collection system.
- Provide feedback if experiencing any difficulty using the system.
- Ensure that all vaccine data elements are complete.

Healthcare Partners:

- Activate and use the data collection system.
- Provide feedback if experiencing any difficulty using the system.
- Ensure that all vaccine data elements are complete.

Vaccine Priority Group Recommendations

Tier	Subtier	Population	Rationale
1	A	• Vaccine and antiviral manufacturers and others essential to manufacturing and critical support (~40,000) • Medical workers and public health workers who are involved in direct patient contact, other support services essential for direct patient care, and vaccinators (8-9 million)	• Need to assure maximum production of vaccine and antiviral drugs • Healthcare workers are required for quality medical care (studies show outcome is associated with staff-to-patient ratios). There is little surge capacity among healthcare sector personnel to meet increased demand
	B	• Persons > 65 years with 1 or more influenza high-risk conditions, not including essential hypertension (approximately 18.2 million) • Persons 6 months to 64 years with 2 or more influenza high-risk conditions, not including essential hypertension (approximately 6.9 million) • Persons 6 months or older with history of hospitalization for pneumonia or influenza or other influenza high-risk condition in the past year (740,000)	• 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 vaccination
	C	• Pregnant women (approximately 3.0 million) • Household contacts of severely immunocompromised persons who would not be vaccinated due to likely poor response to vaccine (1.95 million with transplants, AIDS, and incident cancer x 1.4 household contacts per person = 2.7 million persons) • Household contacts of children <6 month olds (5.0 million)	• In past pandemics and for annual influenza, pregnant women have been at high risk; vaccination will also protect the infant who cannot receive vaccine. • Vaccination of household contacts of immunocompromised and young infants will decrease risk of exposure and infection among those who cannot be directly protected by vaccination
	D	• Public health emergency response workers critical to pandemic response (assumed one-third of estimated public health workforce=150,000) • Key government leaders	• Critical to implement pandemic response such as providing vaccinations and managing/monitoring response activities • Preserving decision-making capacity also critical for managing and implementing a response
2	A	• Healthy 65 years and older (17.7 million) • 6 months to 64 years with 1 high-risk condition (35.8 million) • 6-23 months old, healthy (5.6 million)	• Groups that are also at increased risk but not as high risk as population in Tier 1B

Vaccine Priority Group Recommendations (cont.)

	B	• Other public health emergency responders (300,000 = remaining two-thirds of public health work force) • Public safety workers including police, fire, 911 dispatchers, and correctional facility staff (2.99 million) • Utility workers essential for maintenance of power, water, and sewage system functioning (364,000) • Transportation workers transporting fuel, water, food, and medical supplies as well as public ground public transportation (3.8 million) • Telecommunications/IT for essential network operations and maintenance (1.08 million)	• 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		• Other key government health decision-makers (estimated number not yet determined) • Funeral directors/embalmers (62,000)	• Other important societal groups for a pandemic response but of lower priority
4		• Healthy persons 2-64 years not included in above categories (179.3 million)	• All persons not included in other groups based on objective to vaccinate all those who want protection

*The committee focused its deliberations on the U.S. civilian population. ACIP and NVAC recognize that Department of Defense needs should be highly prioritized. DoD Health Affairs indicates that 1.5 million service members would require immunization to continue current combat operations and preserve critical components of the military medical system. Should the military be called upon to support civil authorities domestically, immunization of a greater proportion of the total force will become necessary. These factors should be considered in the designation of a proportion of the initial vaccine supply for the military.

Other groups also were not explicitly considered in these deliberations on prioritization. These include American citizens living overseas, non-citizens in the U.S., and other groups providing national security services such as the border patrol and customs service.

(Source: HHS Pandemic Influenza Plan, Part 2-Public Health Guidance Supplements, Supplement 6)

Mass Clinic Planning

Overview

Vaccination is the primary intervention to decrease morbidity and mortality from influenza during a pandemic. Antiviral chemoprophylaxis also may have an important role in preventing infection and antiviral therapy may reduce complications and improve outcomes. Dispensing of antiviral medications and/or vaccines is a cornerstone of any mass prophylaxis campaign against outbreaks of preventable disease. Without the ability to safely dispense large volumes of medications or vaccines to community-based and hospitalized individuals, efforts to curtail the pandemic will not translate into an effective public health response. The ability to vaccinate, treat, or prophylax those initially prioritized to receive vaccine or antiviral medication, and to expand operations as possible is a central activity that requires planning.

The New York State Department of Health (NYSDOH) has undergone an extensive mass clinic planning and training initiative centered around the Point of Dispensing (POD) concept. All local health departments (LHDs) and hospitals have been introduced to POD planning and have developed materials, defined roles, and undertaken exercises in regard to mass clinic planning. The NYSDOH has developed and distributed a POD Standard Operations Guide (POD SOG) that provides both generic guidelines and templates, along with disease specific materials. Planning for pandemic influenza mass vaccination clinics is adequately covered in POD training and planning activities, and the POD SOG is an important adjunct to the pandemic influenza plan. The POD SOG includes most of the essential influenza materials and will be updated yearly, or as frequently as needed during a pandemic. The POD SOG, therefore, will form the basis for all pandemic influenza guidelines. The POD SOG is available on the Health Provider Network at https://commerce.health.state.ny.us/hpn/hanweb/sns/podguide.html

I. Planning Considerations for Large-Scale Prevention Clinics

A. The POD SOG provides guidance on all major elements needed for mass clinic planning. The following areas are covered:

1. Command and control;
2. Staffing roles required, and job descriptions;
3. Clinic supplies;
4. Procedures for requesting vaccine or medication;
5. Vaccination clinic location;
6. Clinic lay-out and specifications;
7. Crowd management outside of the clinic;
8. Crowd management inside of the clinic;
9. Clinic security;
10. Clinic advertising;
11. Risk communications/health education;
12. Adverse event tracking;
13. Data management; and
14. Information on special needs populations.

B. The POD SOG includes the following influenza specific materials:

1. Target groups for vaccination;
2. Composition of the current vaccine;
3. Standing orders for administering influenza vaccine and antiviral medication;
4. Information on live attenuated influenza vaccine (LAIV);
5. General influenza vaccine information;
6. Information on how to administer influenza vaccine;
7. Sample forms to screen for contraindications;
8. Facts sheets from the Centers for Disease Control and Prevention (CDC) in English and Spanish;
9. Vaccine information sheets (VISs) on influenza vaccine in English, Spanish, and Russian;
10. Information on respiratory hygiene in healthcare settings;
11. Information on the administration of antiviral medication, including dosing information;
12. Patient education materials; and
13. Information on avian influenza in English and Spanish.

II. References and Resources for Mass Vaccination or Antiviral Dispensing

- Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices (ACIP)
  http://www.cdc.gov/mmwr/PDF/rr/rr5408.pdf

- General Guidelines for Smallpox Vaccination Clinics:
  www.bt.cdc.gov/agent/smallpox/response-plan/files/annex-2.pdf

- Guidelines for Large Scale Vaccination Clinics:
  www.bt.cdc.gov/agent/smallpox/response-plan/files/annex-3.pdf

- Pandemic Influenza Response and Preparedness Plan
  www.pandemicflu.gov

- Vaccination Ventures: Explanation and Outcomes of Mass Smallpox Vaccination exercises. San Francisco Department of Public Health
  www.dph.sf.ca.us./Reports/June17Drill/FnlJune17Rpt.pdf

- Guidelines for Large-Scale Influenza Vaccination Clinic Planning
  http://www.cdc.gov/flu/professionals/vaccination/pdf/vaxclinicplanning0405.pdf

- Information on Investigational New Drug (IND) Use
  http://www.access.gpo.gov/nara/cfr/waisidx_99/21cfr312_99.html

- Information on Emergency Use Authorization
  http://www.fda.gov/cber/gdlns/emeruse.pdf

Vaccine and Antiviral Medication Procurement

Appendix 6-C is intended to serve as an operational guide to the request, receipt, storage, shipment and distribution of pandemic influenza vaccine and antiviral medications. It should be recognized that supplies of both vaccine and antivirals may be limited during a pandemic. Access to these products will be through the State of New York and will be controlled at the local level by county health departments. In all cases, the disposition of these items must be carefully tracked to ensure their appropriate use and efficacy.

I. Levels of Supply

A public health crisis involving pandemic influenza necessitating the need for distributing vaccine/antiviral medications may be similar to most events that may require activation of the NYS SNS plan. Vaccine/antiviral availability will change during the course of a pandemic. Pandemic response strategies will vary with vaccine/antiviral supply. Four vaccine/antiviral supply levels can be defined.

Stage 1: No Vaccine/Antiviral Supply
At the beginning of a pandemic, it is possible that no vaccine will be available. Depending on the particular viral strains that make up the pandemic, there may or may not be a supply of effective antiviral medications available for distribution and use.

Stage 2: Limited Vaccine/Antiviral Supply
When first available, the vaccine/antiviral supply may be less than that required to protect the susceptible population. Priority groups for vaccine/antivirals will need to be identified. Plans for distribution of vaccine/antivirals will need to be formulated. Approaches to inform priority groups about the availability of vaccine/antivirals and where to receive it; and to educate the public regarding vaccine/antiviral priorities and their rationale will be needed. Allocation plans for counties that are to receive vaccine/antivirals need to be developed, based on priority populations. Vaccine/antiviral effectiveness and safety need to be monitored. Depending on amounts of vaccine/antivirals available, a State SNS Mobilization Site may be activated. Repackaging may be required.

Stage 3: Adequate Vaccine/Antiviral Supply
Vaccine/antiviral supply will match the need and ability to distribute vaccine/antivirals. This will allow a shift from priority groups to the wider population. Strategies are developed to assure equitable distribution to special needs populations. The State SNS Plan may be activated to facilitate distribution of the vaccine/antivirals.

Stage 4: Excess Vaccine/Antiviral Supply
Vaccine/antiviral supplies exceed that needed to protect the NYS population. The State SNS Plan may be activated to facilitate distribution of the vaccine/antivirals. With less demand and abundant supply vaccine/antiviral distribution may return to normal pre-pandemic supply strategies that include the use of private distribution and/or private providers.

II. Operational Assumptions

- All SNS vaccine/antiviral materiel will be procured by CDC and arrive at a State Mobilization Site (NYSDOH Vaccine Depot or designated site) after CDC's decision to deploy the vaccine/antivirals.
- NYS will activate its SNS Plan to facilitate the widespread distribution of vaccines/antivirals.
- Influenza vaccine will be distributed rapidly to the public sector through partnership arrangements with LHDs.
- Multiple shipments of vaccine/antivirals may be requested and deployed.
- There may be multiple local requests for vaccine/antiviral assets.
- There may be competing requests for vaccine/antiviral assets from neighboring states.
- Upon receipt of the vaccine/antivirals from the CDC, New York State will assume responsibility for the vaccine/antivirals until they are delivered to the affected locality.
- State agency resources and personnel will likely be needed to support local distribution and dispensing efforts.
- The affected locality will be responsible for vaccine/antivirals delivered to it and will have identified suitable locations for storage and distribution.
- The State may return all undistributed supplies to the federal authorities.
- NYS maintains a supply of antivirals in the State Medical Emergency Response Cache (MERC).
- If vaccines with applicable influenza strains are not immediately present during initial stages of the pandemic, it will take 4 to 8 months between the pandemic alert and vaccine availability.
- No more then 20% of the total vaccine needs for New York State will be available to immunize the population on a monthly basis.

III. Vaccine and Antiviral Deployment

The goal of deployment is to quickly and orderly deliver needed supplies to local agencies to allow them to immunize, treat or prophylax members of their communities. When appropriate, distribution will be via the State's SNS plan. Receipt and distribution of vaccine/antiviral assets will involve numerous local, State, Federal, volunteer, and private agencies. There are five critical centers that must coordinate actions and ensure a smooth flow of information:

1. State Emergency Coordination Center
2. Local Emergency Operations Centers
3. State Mobilization Site/Vaccine Storage Depot
4. Local Staging Sites
5. Points of Dispensing/Treatment Centers.

The deployment of vaccine/antivirals to NYS will be broken down into four distinct phases.

1. Request Phase

The request phase includes the local and State analysis of the situation potentially requiring the deployment of vaccine/antivirals and the request itself. Assets may be requested by the State or CDC may allocate certain amounts to the state. The NYSDOH will assume the lead role in requesting the assets with support from SEMO. Local jurisdictions can request vaccines/antivirals through the local emergency management offices to the State Emergency Coordination Center after coordination among appropriate local agencies. State Emergency Management will coordinate all local requests with the NYSDOH.

2. Mobilization and Staging Phase

The mobilization phase of distributing vaccine/antiviral assets involves all activities associated with the receipt, off-loading, staging, processing, repackaging, and transportation of materiel. NYS agencies, regional agencies, and some counties will be responsible for all activities associated with the mobilization effort. Local resources may also be utilized, where available, to assist with mobilization efforts. Local resources, when utilized, will be integrated into State activities. Counties should plan for establishing a local staging site within the county limits that will receive shipments from the State Mobilization Site. This staging site should have the ability to maintain cold chain management of vaccines or proper environmental conditions for storage of antivirals.

3. Immunization/Dispensing Phase

The immunization/dispensing phase includes those activities associated with the set-up and operation of POD and treatment center facilities, which provide immunization, treatment and/or prophylactic medications to affected members of the public, or provide medications to treatment centers, such as hospitals, clinics, etc. NYSDOH will provide guidance to counties detailing priority groups, duration of prophylaxis, etc.

Collection, storage and transmission of information on individuals who are vaccinated will be undertaken by local public health agencies using the HERDS framework under the supporting architecture of the NYS Commerce System. Information concerning administration of vaccine and tracking of vaccine supplies will be achieved through the use of a countermeasures response system that is integrated with the Clinic Data Management System (CDMS) and HERDS. A description of this system and the detailed requirements for data collection are included in the Informatics section of this plan.

The NYSDOH will provide specific guidance on the disposition of vaccine and antiviral medications to local public health authorities to ensure that circumstances surrounding their use and administration are consistent with established priorities. All recipients of State supplied vaccine and antivirals will be required to follow the guidance provided by the NYSDOH.

4. Recovery Phase

The recovery phase includes those activities associated with the returning of unused assets to State control. Local public health agencies will be advised by New York State on how excess supplies will be collected and redistributed (if necessary).

IV. Logistics

1. Facilities

The primary vaccine reception point will be the NYSDOH Vaccine Depot located in Wadsworth Center, Albany, New York. This Albany Vaccine Depot consists of 924 cubic feet of refrigeration space. In addition, 1,000 cubic feet of refrigeration space has been identified for use in Wadsworth Center for a combined total of 1924 cubic feet. Capabilities of the depot to store and distribute vaccine are as follows:

- Current storage capabilities are approximately 1.5 million doses in the Albany Vaccine Depot and an additional 1.5 million doses using the additional storage capacity identified in Wadsworth Center for a total of 3 million doses.

- Vaccine will be distributed through normal commercial carriers up to 150,000 doses per day for a total of 5 days per week assuming security requirements permit.

- Beyond 150,000 doses per day or 3,000,000 doses per month, FedEx custom critical or similar refrigerated vehicles will be used. These vehicles may include or necessitate the use of State identified equipment consistent with assets identified by the State Emergency Management Plan.

The primary storage site for antiviral medications available through the MERC is in Albany. However, New York State is in the process of establishing additional MERC storage sites in other areas of the State.

- Antiviral supplies requested by local health authorities may be shipped from the New York State operated storage site closest to the county making the request.

- Locally maintained sites for storage of antivirals should be temperature controlled (not subject to temperature extremes) and be secure against unauthorized access.

- Package inserts for antiviral drugs should be consulted to determine if all FDA-established storage criteria have been met.

2. Ground Support

Local transportation resources, supported by State assets as required, will transport bulk and/or repackaged medications and supplies to designated local staging. Security will be coordinated by State Police.

3. Receipt and Sign-off
A designated NYSDOH physician or representative will be dispatched to the mobilization site to meet and sign for assets. The State Health Commissioner may designate a local physician, working under the auspices of the affected LHD, as the SNS receiving physician.

4. Repackaging
In consultation with local officials, the determination will be made as to where repackaging efforts will be undertaken. Repackaging may be required if short-term prophylaxis of individuals is directed. Staffing for repackaging efforts will be provided by State agency personnel and/or by local agencies per local plans (if existing), as required.

5. Long-term Dispensing Operations
NYSDOH officials will work with local heath officials to determine the need for extended or long-term dispensing efforts. Plans will be developed utilizing pharmacies, postal service, health care facilities and PODs to accomplish these objectives.

V. Activities by Pandemic Period

Interpandemic Period

State Health Department:

- Continue to develop and refine pandemic plan.
- Ensure that the proper storage requirements exist for the contents of the SNS during storage at the mobilization site and during transport.
- Identify overflow storage facilities and make necessary arrangements for use. This may include contracts, memorandums of understanding, etc.
- Examine systems requirements for the Vaccine/Antiviral Ordering System to ensure applicable tracking and distribution of influenza vaccine/antiviral.
- Identify applicable transportation facilities to distribute vaccine/antiviral. Examples may include UPS and FedEx normal and custom critical.
- Identify applicable supplies needed for standard shipping and monitor availability.
- Identify applicable staff for backup to assist with receiving and distribution of vaccine/antivirals.
- Develop/assemble applicable materials and train staff in storage, handling and distribution.
- Identify backup or alternative distribution facilities to be used if required.
- Identify sources of pneumococcal vaccine.

Local Health Departments:

- Determine county requirements based upon the guidance received from the NYSDOH priority groups.
- Select a primary county staging site where assets may be delivered.

Pandemic Alert Period

State Health Department:

- Continue training staff identified to assist with receiving and distributing vaccine/Antivirals.
- Notify other NYSDOH affected partners supporting the breakdown and distribution effort Arrange for repackaging if necessary. This will be coordinated with the NYS Board of Pharmacy.
- Provide staff support, equipment, patient information forms, protocols for receipt, storage and distribution, and adverse event monitoring.
- Ensure the proper storage requirements the vaccine/antivirals at the central mobilization site and during transport.
- Identify and assign technical specialists to support command, operations and planning associated with SNS receipt, repackaging and distribution efforts. Technical specialists may include physicians, pharmacists, logisticians, GIS personnel, etc.
- Assist the locality by providing protocols for distribution, adverse event monitoring, and other support as coordinated or requested.
- Monitor supplies and insure availability in all areas.
- Monitor backup facility availability and readiness.
- Monitor transportation availability from private contractors.

Local Health Departments:

- Assess their local vaccine/antiviral resources.
- Ensure the proper storage of any items received.
- Ensure the security of any items received both at the county staging site and at the POD in accordance with the State Education Department Board of Pharmacy standards.
- Ensure adequate staffing at county designated PODs to ensure patient safety, including adequate staffing to screen patients for contraindications, ensure medical consultation on-site, ensure patient education, and immunize and/or dispense medications in accordance with NYSDOH and State Education Department requirements.
- Develop a distribution plan to support local sites such as hospitals, diagnostic and treatment centers, and other healthcare providers.

Pandemic Period

State Health Department:

- Obtain guidance from health officials on level of severity or impact relative to NYS population.
- If severity is sufficient and vaccine supply exists at SNS, vendor managed inventory (VMI) or other CDC-designated location, order vaccine to inoculate part/all of affected population

- Work with local heath officials to determine the need for extended or long-dispensing efforts. Plans will be developed utilizing pharmacies, postal service, health care facilities and PODs to accomplish these objectives.
- Receive and inventory vaccine/antiviral at Albany Depot.
- Distribute vaccine/antiviral applicable populations and LHDs as directed.
- If severity is sufficient and vaccine supply does not exist, work with Disaster Preparedness Unit to assist in delivery of antivirals, as needed.
- Continue to prepare for vaccine/antiviral availability.
- Implement plans for vaccine/antiviral acquisition as directed/specified by CDC or designated agent.
- Communicate plans for distribution and obtain backup resources as needed.

Local Health Department:

- Track dispensing of vaccine/antivirals by lot number and amount.
- Retain responsibility for any undistributed assets until they are returned to the State.

Section 7: Antiviral Medication Procurement, Distribution, and Use

I. Overview

The targeted use of antiviral agents could, as part of a response strategy to susceptible strains, decrease the health impact of an influenza pandemic. Use of antiviral prophylaxis has been up to 70% to 90% effective in preventing symptomatic influenza infection caused by susceptible strains, if prophylaxis is begun before exposure to influenza. Also, treatment with one class of agents, neuraminidase inhibitors, has been shown to decrease severe complications such as pneumonia and bronchitis and to reduce hospitalizations. These interventions may be particularly important before vaccine is available and for those in whom vaccination may be medically contraindicated. Protection afforded by antiviral medications is virtually immediate and does not interfere with the response to inactivated influenza vaccines. It is important to avoid inappropriate use of antiviral medications that may lead to viral resistance.

Drugs with activity against influenza viruses (antivirals) include the adamantanes, amantadine and rimantadine, and the neuraminidase inhibitors, oseltamivir and zanamivir. Appropriate use of these agents during an influenza pandemic may reduce morbidity and mortality and diminish the overwhelming demands that will be placed on the healthcare system. Antivirals might also be used during the Pandemic Alert Period in limited attempts to contain small disease clusters and potentially slow the spread of novel influenza viruses.

The Department of Health and Human Services (DHHS) and the National Vaccine Advisory Committee (NVAC), in cooperation with the Centers for Disease Control and Prevention (CDC) and the Advisory Committee on Immunization Practices (ACIP), have provided guidance on prioritization of persons to be given antivirals during a pandemic. This guidance will most likely change when epidemiologic data on a specific pandemic virus becomes available. Once this information is known, the NYSDOH, in conjunction with the CDC, health care organizations, and local health departments (LHDs), will determine the prioritization of the population groups to receive influenza antiviral medication. These recommendations will then be distributed as statewide guidelines.

It is also important to monitor the use of antiviral medications. These drugs are in frequent use both during the influenza season, and for other indications year round. There is information and data available on the side effects of antiviral medications. However, there are no data available on the large scale use of these medications in a pandemic situation. Monitoring and tracking of antiviral use, compliance, effectiveness, resistance, and adverse events are important aspects of responding to a pandemic.

This section of the pandemic influenza plan provides recommendations on the distribution and use of antiviral drugs for treatment and prophylaxis during an influenza pandemic. It discusses the strategies available for the use of antiviral medications, including how they can be used, the timing of their use, and facilities or settings in which they may be offered. This section also reviews the issues surrounding the procurement and distribution of antiviral medications, safety monitoring, and data collection. Finally,

the activities necessary for pandemic planning by the NYSDOH, LHDs, and health care partners are outlined.

The recommendations for the use of antivirals during the Pandemic Phase are divided into three situations: 1) when no or sporadic pandemic influenza has been detected in the United States, 2) when there is limited transmission of pandemic influenza in the United States, and 3) when there is widespread transmission in the United States. Treatment strategies for optimizing the use of limited stocks of antiviral drugs will vary depending on the phase of the pandemic. Recommendations for optimal use of limited stocks of antivirals will be updated throughout the course of an influenza pandemic to reflect new epidemiologic and laboratory data.

II. Objectives

- Describe available strategies for using antiviral medications, the timing of their use, and facilities or settings in which they may be used;
- Outline the method by which the NYSDOH will make decisions regarding prioritization of antiviral use during an influenza pandemic;
- Plan for the acquisition and distribution of antiviral medications, including the creation and maintenance of antiviral stockpiles;
- Monitor antiviral medication use and safety during a pandemic to assure that the benefits outweigh the risks; and
- Collect appropriate data on antiviral procurement, distribution, use, safety, effectiveness, and resistance.

III. Strategies for the Use of Antiviral Medications During a Pandemic

A. Methods for the Use of Antiviral Medications: Treatment, Prophylaxis, and Post-Exposure

The option of whether to treat or prophylax with antiviral medications depends on the pandemic phase and the type of group being considered. Treatment is more efficient than prophylaxis in preventing adverse health outcomes. Treatment uses less medication and focuses on those who are ill and will directly benefit from the intervention. However, it may be hard to maintain essential services with this approach. Prophylaxis requires a greater amount of medication because it requires administration over a long period of time. Prophylaxis may be more effective than therapy in maintaining quality health care and public safety. It may prevent absenteeism due to fear of acquiring illness and prevent time lost from work while ill.

- **Treatment** (For clinical guidelines regarding the use of antiviral medications to treat patients ill with influenza, see Section 5.)

Planning Considerations

- The effectiveness of antivirals against a new pandemic influenza strain cannot be predicted.
- Early treatment is a more efficient use of antivirals than prophylaxis, because prophylaxis requires 6 or more weeks of daily use, instead of a 5-day treatment course.
- The choice of antiviral medication used will depend on what is known about the viral resistance pattern and the availability of a particular drug.
- For more information, see Appendix 7-A: Characteristics of Anti-Influenza Antiviral Medications, and Appendix 7-B: Recommended Daily Dosage of Antiviral Medications for Treatment and Prophylaxis.

Treatment of Influenza Disease

The clinical effectiveness of antiviral medications for treatment of novel influenza is unknown, but it is likely that the earlier treatment is initiated, the greater likelihood of benefit. Treatment strategies for optimizing the use of limited stocks of antiviral drugs will vary depending on the phase of the pandemic. As infection with the pandemic strain becomes more common, laboratory confirmation will be less necessary to initiate treatment. Strategies include:

At all stages of a pandemic:

- Targeting treatment to influenza patients admitted to the hospital within 48 hours of symptom onset. Treatment after 48 hours of onset may have no benefit. Note: there are no data on the effectiveness of treatment at hospitalization. If stockpiled antiviral drug supplies are very limited, the priority of this group could be reconsidered based on the epidemiology of the pandemic and any additional data on effectiveness in this population.
- Implementing mechanisms to detect the emergence of drug-resistant variants by obtaining specimens from persons who develop influenza while on prophylaxis or who progress in severity despite treatment.

When pandemic influenza is reported abroad, or sporadic pandemic influenza cases are reported in the United States, without evidence of spread:

- Treatment decisions should be based on laboratory confirmation of disease caused by the pandemic strain by viral isolation, real-time polymerase chain reaction (RT-PCR), or other means recommended by CDC. Treatment may be initiated with a positive rapid antigen test for influenza A, though a confirmatory test should be performed and treatment discontinued if influenza is not confirmed (see Sections 2 and 5).
- Negative test results would permit cessation of treatment, given the overall low rate of infection in a particular location.

- Use of antivirals to contain small, well-defined disease clusters in order to possibly delay or reduce spread to other communities could be considered.

When there is limited transmission of pandemic influenza in the United States

- Treatment decisions would be based on:
  - Laboratory-confirmed identification of the pandemic subtype by viral isolation, RT-PCR, or other means recommended by CDC, OR
  - Detection of influenza A by rapid antigen test, OR
  - Epidemiologic and clinical characteristics
- Treatment should be initiated before laboratory confirmation is obtained since early treatment is more effective. As infection becomes more common false negatives from rapid antigen tests are more likely, and treatment should continue while awaiting confirmatory tests.

When there is widespread transmission of pandemic influenza in the United States:

- Treatment decisions will be based on clinical features and epidemiologic risk factors, taking into account updated knowledge of the epidemiology of the pandemic strain.
- Laboratory results will no longer be needed to initiate and continue treatment.

- **Prophylaxis**

Planning Considerations

- Prophylaxis requires the long-term use of antiviral medications to protect the recipient from acquiring influenza.
- There will be limited supplies, increasing risk of side effects, and the potential emergence of resistance with long-term use.
- Prophylaxis must be continued until the risk of exposure is reduced.
- Prophylaxis may be more effective than therapy in maintaining quality healthcare and public safety.
- The need may decrease as vaccine becomes available.
- The number of persons who receive prophylaxis should be minimized, primarily to extend supplies available to treat persons at highest risk of serious morbidity and mortality.

Prophylaxis against Influenza Disease

- Prophylaxis will be administered according to supply and priority group.
- Prophylaxis may be used early in the pandemic to control limited outbreaks or in contained settings.
- Prophylaxis use will be determined by the susceptibility of the circulating influenza strain and the epidemiology of the pandemic.

- **Post-Exposure Prophylaxis**

  Planning Considerations
  - Post-exposure prophylaxis (PEP) is the administration of antivirals after a person has been exposed to the pandemic virus.
  - PEP generally lasts for 10 days.

  PEP After Contact with an Influenza Case
  - PEP may be useful to control small, well-defined disease clusters.
  - PEP may be useful to prevent disease in household contacts of pandemic influenza patients.
  - PEP may be useful to protect key personnel after vaccination and during the period between vaccination and the development of immunity (usually 2 weeks). The administration of antivirals does not interfere with the development of antibodies to influenza virus after the administration of an inactivated vaccine.
  - State and local health departments in consultation with CDC will recommend which contacts should receive PEP, depending on availability of antivirals and the epidemiology of the pandemic.

B. Timing of the Use of Antiviral Medications

Recommendations during the Interpandemic and Pandemic Alert Periods: Use of Antivirals in the Management of Cases with a Novel Influenza Strain
- The term "novel strain of influenza" is used to refer to avian or animal influenza strains that can infect humans (like the H5N1 strain), and new or re-emergent human influenza viruses that cause cases or clusters of human disease. See Section 2: Surveillance and Laboratory Testing for a discussion of the detection and identification of novel strains.
- A person with a suspected case of a novel strain of influenza should be isolated as described in Section 8: Travel-Related Disease Control and Community Prevention, and treated according to the clinical algorithm described in Section 5: Clinical Guidelines, ideally within 48 hours.
- State and local health departments may consider the use of antivirals to contain small clusters of infection as a community-wide measure. This should be considered only during a small outbreak or in a well-defined setting such as military base or nursing home.
- Feasibility would need to be evaluated in terms of antiviral supply, and whether rapid delivery and administration could be accomplished.

Recommendations for the Pandemic Period: When pandemic influenza is reported abroad, or sporadic pandemic influenza cases are reported in the United States, without evidence of spread
- Consider the use of antivirals in treatment, prophylaxis, or PEP in the context of containing limited outbreaks or in contained settings.

- Consider the use of antiviral prophylaxis to persons at highest risk of pandemic influenza based on prioritization strategies.
- Treatment and prophylaxis should be guided by modifications to priority groups based on the epidemiology of the pandemic.
- Treatment and prophylaxis should be guided by antiviral supply and the susceptibility of the pandemic strain.

Recommendations for the Pandemic Period: When there is <u>limited transmission</u> of pandemic influenza in the United States

- Antiviral drugs should be targeted to priority groups for prophylaxis and treatment, as supply and the susceptibility of the circulating strain allow.
- Strategies to contain outbreaks and treat contacts will be minimized as the pandemic expands.
- Antiviral use will be decreased as a vaccine becomes available and is more widely distributed.

Recommendations for the Pandemic Period: When there is <u>widespread transmission</u> of pandemic influenza in the United States

- Prioritize treatment for those at highest risk of severe illness and death if supplies are limited.
- Preserve the delivery of healthcare and other essential critical services through early treatment and prophylaxis.
- Provide protection between a first and second vaccine dose or until immunity develops after vaccination.
- Protect those that have an inadequate vaccine response (the elderly and those with underlying immunosuppression), and those with contraindications to vaccination, such as anaphylactic hypersensitivity to eggs.

IV. Prioritization

The primary objectives of the use of antiviral medication during a pandemic are to prevent morbidity and mortality from a novel influenza strain, to maintain essential services, and to minimize social disruption. Most, if not all, of the population will be susceptible to a novel influenza strain, and antiviral medication supply will likely be limited. Antiviral use will be most important during the time when vaccine supply is limited, while immunity from the vaccine is being developed, and possibly between doses if two doses are required.

Priority Groups

Guidelines for the establishment of priority groups for antiviral medications have been developed by NVAC and other federal partners, and are provided in Appendix 7-C. For the purposes of this plan, New York State has included the federal guidance regarding the priority groups for antiviral medications; however, other alternatives are being considered. For example, New York State will assess whether or not critical infrastructure capacities

that protect continuation of essential services, such as healthcare, law enforcement, etc., have sufficient priority.

V. Antiviral Medication Procurement and Distribution

For a detailed description of the logistics involved with the procurement, storage and distribution of antiviral medications, refer to Appendix 6-C: Vaccine and Antiviral Medication Procurement. The requirements and activities described in Appendix 6-C apply to public health crises involving pandemic influenza where local and State medical treatment capabilities are exceeded, necessitating the use of Strategic National Stockpile (SNS) assets (antiviral medications) or locally procured supplies of antivirals.

VI. Antiviral Medication Safety

Adverse events associated with antiviral drug use inevitably will occur. Adverse events are currently monitored nationally by FDA's MedWatch system. The NYSDOH will set up an antiviral safety monitoring system that will coordinate with the MedWatch system. Important components of antiviral safety planning include evaluations of antiviral drug effectiveness and resistance, contraindications, adverse event monitoring, and the use of an Investigational New Drug protocol.

A. Antiviral Medication Effectiveness

In a pandemic, it is likely that federal agencies will conduct antiviral drug effectiveness studies in collaboration with state and local health departments, and other health care and academic partners.

B. Antiviral Drug Resistance

CDC will work with state and local partners to monitor the development of resistance to antivirals. Because resistance to M2 inhibitors may involve a single base pair change, resistance may develop rapidly if these drugs are used widely. Information about resistance to M2 inhibitor and neuraminidase inhibitors can be found in the July 2005 recommendations of the ACIP at http://www.cdc.gov/mmwr/PDF/rr/rr5408.pdf. Surveillance for antiviral resistance may be particularly important during the later stages of the pandemic, especially if M2 agents have been widely used. Under these circumstances, the detection of widespread M2 inhibitor resistance might require a re-evaluation of priorities for prophylaxis and treatment.

CDC will test the drug susceptibilities of viruses isolated from different age groups and geographic areas over the course of the pandemic. The NYSDOH should encourage LHDs and clinicians to obtain specimens from patients who develop severe disease while receiving treatment or prophylaxis. The NYSDOH will consider developing the capability to test for resistance.

C. Contraindications

Each antiviral medication has specific contraindications and dosing requirements. Dosage needs to be adjusted for use in children, those with compromised creatinine clearance, those with hepatic dysfunction, and the elderly. There currently are no antiviral medications licensed for use in children under the age of 1 year. Those individuals with a known allergy to a medication should not receive it. For a description of antiviral medications available for the treatment of influenza, dosage, side effects, and some contraindications, see Appendix 7-A: Characteristics of Anti-Influenza Antiviral Medications; Appendix 7-B: Recommended Daily Dosage of Antivirals for Treatment and Prophylaxis; and the July 2005 recommendations of the ACIP at http://www.cdc.gov/mmwr/PDF/rr/rr5408.pdf.

D. Antiviral Medication Adverse Event Monitoring and Reporting

During a pandemic, those who have received antiviral prophylaxis and have concerns about a potential adverse event, will be referred to their own health care provider or the local emergency department for medical evaluation. If a provider requires medical advice or support, he or she may call the medical director of their local health department or their designated medical regional resource center. There are 8 regional resource centers throughout the upstate area. These are medical centers with a complete selection of medical specialists that can care for and address adverse events. Physicians at the NYSDOH will be available for consultation on antiviral related adverse events, and can consult experts at the CDC if required.

Serious adverse events associated with the use of antiviral influenza drugs should be reported to the FDA, using the Med Watch monitoring program. During an influenza pandemic, state and local health departments can assist in this effort by providing protocols and information to health care providers and encouraging them to download MedWatch forms (available at http://www.fda.gove/medwatch/) for distribution to patients. Adverse events reported to Med Watch are collated and analyzed by the FDA's Adverse Events Reporting System (AERS).

Use of antivirals will be much greater during a pandemic than during a regular influenza season. To help improve the detection for serious adverse effects (especially rare effects or effects in vulnerable populations), addition efforts to encourage recognition and reporting of adverse events will be needed. These efforts might include:

- Active surveillance for adverse events observed at emergency rooms, through the National Electronic Injury Surveillance System Cooperative Adverse Drug Event project (NEISS-CADE) or other surveillance systems,
- Active surveillance for adverse events among those prioritized for antiviral prophylaxis,

- Local campaigns to educate health care workers about the recognition and reporting of adverse events, and
- Distribution of MedWatch forms and descriptions of known adverse events to each provider and user of antiviral drugs.

In addition, CDC and the FDA will explore the use of existing drug-monitoring system that have access to individual health utilization records that many allow active, population-based surveillance for adverse events following the use of antivirals for treatment or prophylaxis.

E. Contingency Planning for Use of an Investigation New Drug Protocol

It may be necessary to use an unlicensed antiviral drug under the FDA's Investigational New Drug (IND) provisions. IND provisions require completion of a signed consent form from each person who receives the medication, and mandatory reporting of specified types of adverse events. They also require strict inventory control and record-keeping, and approval from Institutional Review Boards (IRBs) in hospitals, health departments, and other venues. The FDA regulations permit use of a national or "central" IRB.

As an alternative to IND use of an unapproved antiviral drug, HHS may utilize the drug product under Emergency Use Authorization procedures as described in the FDA draft guidance "Emergency Use Authorization of Medical Products" available on the FDA website at www.fda.gov/cber/gdlns/emeruse.pdf.

VII. Data Collection

The NYSDOH will develop a strategy for monitoring antiviral drug distribution by public health. Data elements that may be collected include:

- The distribution of state or federal supplies of antiviral drugs:
  - where antivirals are shipped;
  - who has received them;
  - type of administration: treatment, prophylaxis, PEP;
  - dose and number of doses administered by person and in the aggregate;
  - relevant medical history.
- Adverse events following administration of antivirals.
- Priority groups reached.
- Rates of severe influenza illness and death among those treated and untreated.

VIII. Activities by Pandemic Period

1. Strategies for the Use of Antiviral Medications

Interpandemic and Pandemic Alert Periods

State Health Department:

- Continue the administration of seasonal influenza and pneumococcal vaccine to reduce the possibility of co-infection, and to maintain and develop influenza vaccination infrastructure.
- Continue the use of antivirals to control nosocomial outbreaks.
- Plan for the use of an IND protocol.
- Plan for the implementation of treatment, prophylaxis, and PEP protocols.
- Plan for data collection.

Local Health Departments:

- Continue the administration of seasonal influenza and pneumococcal vaccine to reduce the possibility of co-infection and to maintain and develop influenza vaccination infrastructure.
- Continue the use of antivirals to control nosocomial outbreaks.
- Plan for the use of an IND protocol.
- Plan for the implementation of treatment, prophylaxis, and PEP protocols.
- Determine the size of priority groups in their jurisdiction.

Healthcare Partners:

- Continue the administration of seasonal influenza and pneumococcal vaccine to reduce the possibility of co-infection and to maintain and develop influenza vaccination infrastructure.
- Continue the use of antivirals to control nosocomial outbreaks.
- Continue to treat all patients admitted to the hospital with influenza within 48 hours.
- Use antivirals in the medical management of novel cases of influenza as outlined in clinical protocols.
- Plan for the use of an IND protocol.
- Plan for the implementation of treatment, prophylaxis, and PEP protocols.
- Develop plans to implement distribution of antivirals to priority groups.

Pandemic Period - No Pandemic Influenza Detected in the United States or only Sporadic Cases Reported in the United States

State Health Department:

- Continue the administration of seasonal influenza and pneumococcal vaccine to reduce the possibility of co-infection, and to maintain and develop influenza vaccination infrastructure.

- Continue the use of antivirals to control nosocomial outbreaks.
- Plan for the use of antiviral drugs in the management of persons infected with novel strains of influenza and their contacts.
- Work with LHDs and health care partners to disseminate public health guidance that encourages drug-use practices that help minimize the development of drug resistance.

Local Health Departments:

- Continue the administration of seasonal influenza and pneumococcal vaccine to reduce the possibility of co-infection, and to maintain and develop influenza vaccination infrastructure.
- Continue the use of antivirals to control nosocomial outbreaks.
- Plan for the use of antiviral drugs in the management of persons infected with novel strains of influenza and their contacts.
- Work with health care providers to disseminate public health guidance that encourages drug-use practices that help minimize the development of drug resistance.

Healthcare Partners:

- Continue the administration of seasonal influenza and pneumococcal vaccine to reduce the possibility of co-infection, and to maintain and develop influenza vaccination infrastructure.
- Continue the use of antivirals to control nosocomial outbreaks.
- Plan for the use of antiviral drugs in the management of persons infected with novel strains of influenza and their contacts.
- Target treatment to influenza patients admitted t a hospital who present within 48 hours of symptom onset.
- Administer antivirals to all persons sick with influenza that enter the hospital based on clinical algorithms.
- Begin treatment of patients with influenza-like illness and a positive rapid antigen test for influenza A.
- Base the continuation of treatment decisions on laboratory confirmed subtype identification of the pandemic strain by viral isolations, RT-PCR, or other means recommended by CDC, or the severity of disease and susceptibility of the infective strain in illness caused by other influenza subtypes.
- Help to develop and implement health guidance that encourages drug-use practices that minimize the development of drug resistance.

Pandemic Period - When Pandemic Influenza is Detected in the United States

State Health Department:

- Revise the strategies for the use of antivirals as the pandemic progresses, depending on supplies, on what is learned about the pandemic strain,

susceptibility of the pandemic strain, and on when a vaccine becomes available.
- In conjunction with CDC authorize the use of antivirals to treat and control the spread of disease from individuals and small clusters, if cases of novel influenza should occur in the US.
- In conjunction with CDC authorize the tracing of and use of antivirals to prophylax close contacts of persons with novel influenza.
- As the pandemic becomes more widespread it will no longer be practical or useful to prophylax against outbreaks.
- Monitor the amount of people that receive antivirals for prophylaxis to preserve and extend supplies available to treat those persons at the highest risk of serious morbidity and death.
- Assist with the acquisition, distribution, and administration of antivirals to identified priority groups.
- Implement mass distribution of antivirals if needed.

Local Health Departments:
- In conjunction with NYSDOH, CDC, and health care partners administer antivirals to control the spread of disease in small cluster outbreaks or outbreaks in contained settings.
- Trace and prophylax close contacts of confirmed cases if authorized to do so by CDC and NYSDOH.
- Assist with the distribution and administration of antivirals to identified and confirmed priority groups.
- Implement mass distribution of antivirals if needed.

Healthcare Partners:
- With increasing disease activity base treatment decisions on:
  - Laboratory confirmation of infection with a pandemic subtype,
  - Detection of influenza A by rapid antigen test, or
  - Epidemiologic and clinical characteristics.
- Initiate treatment before laboratory confirmation is obtained.
- Continue treatment awaiting confirmatory tests.
- Target prophylaxis to priority groups.
- Use PEP to control small well-defined disease clusters and to protect individuals with a known exposure to a pandemic virus, such as household contacts.
- PEP may be used to protect those prioritized during the period between vaccination and the development of immunity.
- If possible reserve the use of antivirals for prophylaxis only during period of peak viral circulation if that information is available.

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

State Health Department:

- Revise the strategies for the use of antivirals as the pandemic progresses, depending on supplies, on what is learned about the pandemic strain, susceptibility of the pandemic strain, and on when a vaccine becomes available.
- Distribute information about changes in the prioritization guidelines, viral susceptibility, resistance, or supply as available.
- As the pandemic becomes more widespread it will no longer be practical or useful to prophylax against outbreaks.
- Monitor the amount of people that receive antivirals for prophylaxis to preserve and extend supplies available to treat those persons at the highest risk of serious morbidity and death.
- Assist with the acquisition, distribution, and administration of antivirals to identified priority groups.
- Assist with the distribution and administration of antivirals to identified and confirmed priority groups.
- Continue mass distribution of antivirals if needed.

Local Health Departments:

- Distribute information about changes in the prioritization guidelines, viral susceptibility, resistance, or supply as available.
- Assist with the distribution and administration of antivirals to identified and confirmed priority groups.
- Decrease use of antivirals as needed once a vaccine is available
- Continue mass distribution of antivirals if needed.

Healthcare Partners:

- As the pandemic becomes more widespread treatment decisions are made more on clinical characteristics and epidemiologic features. Laboratory confirmation will no longer be necessary.
- Treat those at highest risk of severe illness and death if antiviral supplies are limited.
- Decrease use of prophylactic antivirals as needed once a vaccine is available.
- Continue to administer antiviral prophylaxis between the first and second dose, or until immunity develops if recommended.
- Continue to administer antiviral prophylaxis to those for whom the vaccine is contraindicated or whose response to the vaccine is likely to be inadequate.

2. Prioritization

Interpandemic and Pandemic Alert Periods

State Health Department:

- Develop state specific guidelines for prioritization of the use of antivirals based on the national guidelines in conjunction with LHDs, health care partners, other state agencies, community groups, and others.
- Establish and convene a prioritization committee.
- Identify, define, and quantify priority groups for antiviral use.
- Communicate with the media, LHDs, and health care partners about prioritization decisions.
- Develop relationships and agreements with groups within the state to facilitate antiviral distribution and use. Examples of such groups include tribal authorities and religious groups.
- Identify and quantify the sites that would be needed to administer antiviral drugs (for example hospitals, clinics, nursing homes, alternative care facilities, etc.).
- Plan for the use of standing orders to administer antivirals.
- Plan for mass distribution of antivirals to priority groups if needed.

Local Health Departments:

- Identify, define, and quantify priority groups in local jurisdictions that are prioritized for antiviral use.
- Communicate with the media and health care partners about prioritization decisions.
- Plan for mass administration of antivirals to priority groups if needed.

Healthcare Partners:

- Identify, define, and quantify priority groups for antiviral use.
- Plan for administration of antivirals to priority groups within health care facilities and practices.

Pandemic Period

State Health Department:

- Review modifications, if any, to interim recommendations on antiviral use in selected groups.
- Activate plans for distributing and administering antivirals to persons in priority groups.
- Accelerate training on appropriate use of antiviral drugs among public health staff and health care partners.
- Distribute and deliver stockpiled supplies of antiviral, as appropriate to delivery sites that will administer them to priority groups.

- Communicate updates in the guidelines for appropriate use of antivirals as the pandemic continues.
- Continue to work with health care providers to ensure appropriate use of antivirals in the medical management of early cases and contacts.
- Assist hospitals in implementing procedures for early detection and treatment of influenza in health care workers (see Section 4: Infection Control).

Local Health Departments:

- Activate plans for distributing and administering antivirals to persons in priority groups.
- Distribute and deliver stockpiled supplies of antiviral, as appropriate to delivery sites that will administer them to priority groups.
- Communicate updates in the guidelines for appropriate use of antivirals as the pandemic continues.
- Continue to work with health care providers to ensure appropriate use of antivirals in the medical management of early cases and contacts.

Healthcare Partners:

- Limit the use of antivirals when the pandemic becomes more widespread to treat those who are at the highest risk of severe illness and death and to preserve the delivery of health care services and other essential critical services through early treatment and limited prophylaxis.
- After vaccine becomes available use antivirals for those that may not have an optimal response to the vaccine or for whom the vaccine is contraindicated.
- Target prophylaxis to priority groups.

3. Antiviral Medication Acquisitions and Distribution

See Appendix 6-C.

4. Antiviral Medication Safety

Interpandemic and Pandemic Alert Periods

State Health Department:

- Work with CDC to plan for the capability to monitor drug susceptibility of the pandemic strain and monitor change over time.
- Plan for the use of an IND protocol with a potential requirement to do active surveillance for all those receiving antiviral medication.
- Plan for antiviral effectiveness and resistance studies and laboratory capacity.
- Establish an antiviral adverse event monitoring system.
- Appoint a physician to be the Adverse Event Coordinator for NYS.

- Identify and train NYSDOH and LHD staff that will provide adverse event monitoring.
- Plan for active surveillance.

Local Health Departments:

- Establish antiviral adverse event monitoring procedures based on the NYSDOH monitoring system.
- Identify staff that will be responsible for adverse event monitoring.
- Identify physicians that can provide medical consultation for adverse events.
- Plan for reporting and case investigation of adverse events.
- Plan for active surveillance based on NYSDOH recommendations.

Healthcare Partners:

- Establish antiviral adverse event monitoring procedures based on the NYSDOH monitoring system.
- Identify staff that will be responsible for adverse event monitoring.
- Identify physicians that can provide medical consultation for adverse events.
- Plan for reporting and case investigation of adverse events.
- Plan for the monitoring of facility and practice staff taking antiviral medications for the occurrence of adverse events.

Pandemic Period

State Health Department:

- Work with LHDs and HCPs to evaluate the effectiveness of antivirals for prophylaxis and treatment.
- Monitor the incidence of antiviral adverse events.
- Monitor the emergence of antiviral resistance.
- Make antiviral adverse events reportable in NYS by emergency regulation.
- Report adverse events to the FDA using the MedWatch monitoring program.
- Provide protocols and information to health care providers and encouraging hospitals to download MedWatch forms for distribution to patients.
- Engage in active monitoring for adverse events observed at emergency rooms and health care facilities.
- Educate health care workers and LHD staff about the recognition and reporting of adverse events.
- Distribute MedWatch forms to each end-user that receives antivirals.
- Work with CDC to monitor the development of resistance.
- Encourage clinicians to obtain specimens from patients who develop severe disease while receiving treatment of prophylaxis.

Local Health Departments:

- Investigate and report all antiviral adverse events.
- Engage in active surveillance of antiviral adverse events.
- Distribute MedWatch forms to providers and patients as needed.
- Work with NYSDOH to monitor resistance and effectiveness of antivirals
- Encourage clinicians to obtain specimens from patients who develop severe disease while receiving treatment of prophylaxis.
- Provide protocols and information to health care providers and encouraging hospitals to download MedWatch forms for distribution to patients.

Healthcare Partners:

- Monitor all staff taking antivirals for adverse events.
- Report all adverse events to LHD.
- Participate with the LHD to investigate all adverse events.
- Obtain viral specimens from patients who develop severe disease while receiving treatment or prophylaxis and submit to Wadsworth or CDC according to established protocol.
- Provide medical consultation for those in the community that have concerns about potential adverse events.

5. Data Collection

Interpandemic and Pandemic Alert Periods

State Health Department:

- Work with DHHS, LHDs, and HCPs to implement guidance on specifications for tracking distribution, effectiveness, and safety of antivirals.
- Work with the Data Management Workgroup to develop the ability to collect important antiviral data.
- Provide information to health professionals and the public on issues related to availability and use of antiviral drugs during an influenza pandemic.
- Plan for the use of an IND protocol which would require the collection of detailed information on inventory control, participants, consent, and adverse events.

Local Health Departments:

- Plan for the participation in the data collection system established by the NYSDOH.
- Educate staff about their roles in this system.

Healthcare Partners:

- Plan for participation in the data collection system established by the NYSDOH.
- Educate staff about their roles in this system.

Pandemic Period

State Health Department:

- Track antiviral supply in the state and redistribute as needed.
- Track the speed with which antivirals are able to be delivered.
- Collect data on state supplies of antiviral drugs.
- Collect data on adverse events following administration of antiviral drugs.
- Participate in federal efforts to collect data on the effectiveness of treatment and prophylaxis.
- Participate in federal efforts to collect data on the development of drug resistance.

Local Health Departments:

- Track antiviral supply in the county and redistribute as needed and permitted.
- Collect required data using the data collection system established during the interpandemic phase.
- Provide feedback on the use of the data system to the NYSDOH reporting any problems encountered or modifications recommended.

Healthcare Partners:

- Track antiviral supply within health care facilities.
- Collect required data using the data collection system established during the interpandemic phase.
- Provide feedback on the use of the data system to the NYSDOH reporting any problems encountered or modifications recommended.

Characteristics of Anti-Influenza Antiviral Medications

	Inhibits	Acts on	Administration	Common Side Effects
Amantadine	M2 ion channel	Influenza A	Oral	CNS, GI
Rimantadine	M2 ion channel	Influenza A	Oral	CNS, GI (less often than Amantadine
Oseltamivir	Neuraminidase	Influenza A and B	Oral	GI
Zanamivir	Neuraminidase	Influenza A and B	Inhaler	Bronchospasm

These agents differ in mechanisms of action, pharmacokinetics, FDA-approved indications, dosages, cost, and potential for emergence of drug resistance (see July 2005 recommendations of the AHIC: http://www.cdc.gov/mmwr/PDF/rr/rr5408.pdf.)

The neuraminidase inhibitors and rimantadine are superior with regard to the frequency of side effects.

The use of M2 inhibitors, particularly for treatment, is likely to lead to the emergency and spread of drug-resistant influenza viruses.

(Source: HHS Pandemic Influenza Plan, Part 2-Public Health Guidance Supplements, Supplement 7)

Recommended Daily Dosage of Antivirals for Treatment and Prophylaxis

(Source: HHS Pandemic Influenza Plan, Part 2-Public Health Guidance Supplements, Supplement 7)

	Age Groups (years)				
Antiviral Agent	**1–6**	**7–9**	**10–12**	**13–64**	**≥65**
Amantadine[a]					
Treatment, influenza A	5mg/kg body weight/day up to 150 mg in two divided doses [b]	5mg/kg body weight /day up to 150 mg in two divided doses [b]	100 mg twice daily [c]	100 mg twice daily [c]	≤100 mg/day
Prophylaxis, influenza A	5mg/kg body weight /day up to 150 mg in two divided doses [b]	5mg/kg body weight /day up to 150 mg in two divided doses [b]	100 mg twice daily [c]	100 mg twice daily [c]	≤100 mg/day
Rimantadine [d]					
Treatment,[e] influenza A	NA[f]	NA	NA	100 mg twice daily [c,g]	100 mg/day
Prophylaxis, influenza A	5m/kg body weight /day up to 150 mg in two divided doses [b]	5mg/kg body weight /day up to 150 mg in two divided doses [b]	100 mg twice daily [c]	100 mg twice daily [c]	100 mg/day [h]
Zanamivir[i,j]					
Treatment, influenza A and B	NA	10 mg twice daily	10 mg twice daily	10 mg twice daily	10 mg twice daily
Oseltamivir					
Treatment,[k] influenza A and B	dose varies by child's weight [l]	dose varies by child's weight [l]	dose varies by child's weight [l]	75 mg twice daily	75 mg twice daily
Prophylaxis, influenza A and B	NA	NA	NA	75 mg/day	75 mg/day

NOTE: Amantadine manufacturers include Endo Pharmaceuticals (Symmetrel (R)–tablet and syrup) and Geneva Pharms Tech (Amantadine HCL–capsule); USL Pharma (Amantadine HCL–capsule and tablet); and Alpharma, Carolina Medical, Copley Pharmaceutical, HiTech Pharma, Mikart, Morton Grove, and Pharmaceutical Associates (Amantadine HCL–syrup), and Sandoz. Rimantadine is manufactured by Forest Laboratories (Flumadine (R)–tablet and syrup); Corepharma , Impax Labs (Rimantadine HCL–tablet), and Amide Pharmaceuticals (Rimantadine HCL–tablet). Zanamivir is manufactured by GlaxoSmithKline (Relenza (R)–inhaled powder). Oseltamivir is manufactured by Roche Pharmaceuticals (Tamiflu (R)–tablet). Information based on data published by the U.S. Food and Drug Administration at www.fda.gov, accessed 3/30/2005**.**

[a] The drug package insert should be consulted for dosage recommendations for administering amantadine to persons with creatinine clearance ≤50 ml/min/1.73m2 .

[b] 5 mg/kg body weight of amantadine or rimantadine syrup = 1 tsp/2.2 lbs.

[c] Children aged ≥10 years who weigh <40 kg should be administered amantadine or rimantadine at a dosage of 5 mg/kg body weight /day.

[d] A reduction in dosage to 100 mg/day of rimantadine is recommended for persons who have severe hepatic dysfunction or those with creatinine clearance ≤10 mL/min. Other persons with less severe hepatic or renal dysfunction taking 100 mg/day of rimantadine should be observed closely, and the dosage should be reduced or the drug discontinued, if necessary.

[e] Approved by FDA only for treatment among adults.

[f] Not applicable.

[g] Rimantadine is approved by FDA for treatment among adults. However, certain experts in the management of influenza consider it appropriate for treatment among children. (See American Academy of Pediatrics, 2003 Red Book.)

[h] Older nursing-home residents should be administered only 100 mg/day of rimantadine. A reduction in dosage to 100 mg/day should be considered for all persons aged ≥65 years if they experience possible side effects when taking 200 mg/day.

[i] Zanamivir administered via inhalation using a plastic device included in the medication package. Patients will benefit from instruction and demonstration of the correct use of the device.

[j] Zanamivir is not approved for prophylaxis.

[k] A reduction in the dose of oseltamivir is recommended for persons with creatinine clearance <30 ml/min.

[l] The dose recommendation for children who weigh ≤15 kg is 30 mg twice a day. For children who weigh >15 to 23 kg, the dose is 45 mg twice a day. For children who weigh >23 to 40 kg, the dose is 60 mg twice a day. And for children who weigh >40 kg, the dose is 75 mg twice a day.

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[a] Information on seasonal outbreaks of interpandemic influenza, including public health measures to contain outbreaks, can be found at http://www.cdc.gov/flu/.

[b] McKimm-Breschkin JL. Resistance of influenza viruses to neuraminidase inhibitors - a review. Antiviral Res. 2000, 47:1-17.

[c] Tisdale M. Monitoring of viral susceptibility: new challenges with the development of influenza NA inhibitors. Rev Med Virol, 2000, 10:45-55.

Last revised: November 8, 2005

Appendix 7-C

Antiviral Medication Priority Group Recommendations

	Group	Estimated population (millions)	Strategy**	# Courses (millions)		Rationale
				For target group	Cumulative	
1	Patients admitted to hospital***	10.0	T	7.5	7.5	Consistent with medical practice and ethics to treat those with serious illness and who are most likely to die.
2	Health care workers (HCW) with direct patient contact and emergency medical service (EMS) providers	9.2	T	2.4	9.9	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	2.5	T	0.7	10.6	Groups at greatest risk of hospitalization and death; immunocompromised cannot be protected by vaccination.
4	Pandemic health responders (public health, vaccinators, vaccine and antiviral manufacturers), public safety (police, fire, corrections), and government decision-makers	3.3	T	0.9	11.5	Groups are critical for an effective public health response to a pandemic.
5	Increased risk outpatients—young children 12-23 months old, persons >65 yrs old, and persons with underlying medical conditions	85.5	T	22.4	33.9	Groups are at high risk for hospitalization and death.
6	Outbreak response in nursing homes and other residential settings	NA	PEP	2.0	35.9	Treatment of patients and prophylaxis of contacts is effective in stopping outbreaks; vaccination priorities do not include nursing home residents.

7	HCWs in emergency departments, intensive care units, dialysis centers, and EMS providers	1.2	P	4.8	40.7	These groups are most critical to an effective healthcare response and have limited surge capacity. Prophylaxis will best prevent absenteeism.
8	Pandemic societal responders (e.g., critical infrastructure groups as defined in the vaccine priorities) and HCW without direct patient contact	10.2	T	2.7	43.4	Infrastructure groups that have impact on maintaining health, implementing a pandemic response, and maintaining societal functions.
9	Other outpatients	180	T	47.3	90.7	Includes others who develop influenza and do not fall within the above groups.
10	Highest risk outpatients	2.5	P	10.0	100.7	Prevents illness in the highest risk groups for hospitalization and death.
11	Other HCWs with direct patient contact	8.0	P	32.0	132.7	Prevention would best reduce absenteeism and preserve optimal function.

*The committee focused its deliberations on the domestic U.S. civilian population. NVAC recognizes that Department of Defense (DoD) needs should be highly prioritized. A separate DoD antiviral stockpile has been established to meet those needs. Other groups also were not explicitly considered in deliberations on prioritization. These include American citizens living overseas, non-citizens in the U.S., and other groups providing national security services such as the border patrol and customs service.

**Strategy: Treatment (T) requires a total of 10 capsules and is defined as 1 course. Post-exposure prophylaxis (PEP) also requires a single course. Prophylaxis (P) is assumed to require 40 capsules (4 courses) though more may be needed if community outbreaks last for a longer period.

***There are no data on the effectiveness of treatment at hospitalization. If stockpiled antiviral drug supplies are very limited, the priority of this group could be reconsidered based on the epidemiology of the pandemic and any additional data on effectiveness in this population.

(Source: HHS Pandemic Influenza Plan, Part 2-Public Health Guidance Supplements, Supplement 7)

Pediatric Use of Antiviral Medications

None of the available influenza antivirals are currently FDA approved for use among children aged <1 year. In particular, the safety and efficacy of oseltamivir have not been studied in children aged <1 year for either treatment or prophylaxis of influenza (see oseltamivir package insert). The decision by an individual physician to treat children aged <1 year in an emergency setting on a off-label basis with an antiviral must be made on case-by-base basis with full consideration of the potential risks and benefits. Additional human data on the safety of these agents in the treatment of influenza in young children are needed.

Osteltamivir is available as an oral suspension for use in children. This formulation of oseltamivir may not be available in sufficient supply during a pandemic to treat all pediatric patients. If physicians consider opening 75 mg oseltamivir capsules and using the contents in an attempt to deliver a partial, pediatric dose to children, it must be recognized that there are insufficient data on palatability, stability, and dosing consistency to predict the safety or effectiveness of such unapproved use. Additional study of these issues is needed.

(Source: HHS Pandemic Influenza Plan, Part 2-Public Health Guidance Supplements, Supplement 7)

Section 8: Travel-Related Disease Control and Community Prevention

I. Overview

II. Objectives

III. Components of Travel-Related Disease Control and Community Prevention

A. Travel-Related Disease Control
B. Community Prevention
    1. Isolation and quarantine of at-risk persons or groups of exposed persons
    2. Measures that affect entire communities
C. Community Support and Special Populations
D. Additional Considerations
    1. Public information and understanding of disease containment measures
    2. Legal implications

IV. Activities by Pandemic Period

Appendices:

8-A: Home or Community-Based Facility Isolation or Quarantine Assessment Checklist
8-B: Contact Identification and Management
8-C: Contact Record Form
8-D: Contact Daily Temperature Log
8-E: Contact Daily Temperature Log Tracking Form
8-F: Definitions: Interventions for Community Containment
8-G: Business Pandemic Influenza Planning Checklist
8-H: NYSDOH Model Influenza Voluntary Home Isolation and Quarantine Agreements

I. Overview

The initial response to a novel strain of influenza will aim at containing the virus at its source. Thorough case isolation and quarantine of contacts in the area where the novel strain emerges may slow the spread of a pandemic. Travel restrictions to and from areas of viral transmission may help slow viral spread to other parts of the world. When the virus moves beyond its initial range and is introduced into the United States, early efforts will likely include isolation and quarantine of newly arrived cases and their contacts. But as transmission becomes more widespread in the United States, quarantine becomes less effective and may not be used as a primary public health intervention. Slowing initial viral spread will allow greater time to manufacture and distribute influenza antiviral medications and to develop, manufacture, distribute, and administer influenza vaccine. Epidemiologic investigation of early influenza cases may reveal features of the novel strain that will be relevant to what efforts have the greatest potential in slowing viral spread.

The goal of Travel-Related Disease Control and Community Prevention is to slow the initial spread of pandemic influenza and to describe steps that individuals can take (to reduce their risk of becoming infected and their risk of spreading infection to others) and steps that the community as a whole can take.

II. Objectives

The objectives of the Travel-Related Disease Control and Community Prevention Section address:

- Travel-related considerations and strategies that include distribution of travel health alert notices and restriction or cancellation of non-essential travel.
- Isolation of cases and quarantine of contacts, including times when they may be warranted.
- Community containment measures to prevent or decrease transmission.
- Local community resources needed to support persons caring for themselves and family members at home or in special isolation and quarantine facilities.

III. Components of Travel-Related Disease Control and Community Prevention

A. Travel-Related Disease Control

The overall travel-related strategy aims at protecting travelers and decreasing entry of pandemic influenza into New York State. International health and travel organizations will be expected to implement exit screening for ill persons and to identify persons with influenza-like illness during transit and implementing protocols to limit potential transmission to other passengers.

In-state activity will include:

- Promoting awareness of CDC and WHO travel advisories and information on how travelers can reduce their risk of acquiring pandemic influenza when traveling outside New York State;
- Implementing point-of-entry interventions to rapidly identify persons who may have or have been exposed to pandemic influenza;
- Isolating persons and identifying and quarantining contacts, at home or in isolation and quarantine facilities.

Persons living in areas where a novel influenza strain is circulating and who develop influenza-like illness and their contacts, should defer travel to unaffected areas. Persons experiencing influenza-like symptoms should report their illness to health authorities. Travelers from affected areas should undergo exit screening for influenza symptoms before departing for areas currently free of influenza.

Non-essential travel to areas where a novel influenza strain is circulating should be postponed. Travelers can learn where a novel influenza strain is present from CDC's Travel Health Precautions and Warnings web site (http://www.cdc.gov/travel) and WHO's Disease Outbreak News web site (http://www.who.int/csr/don/en/).

Effective management of travelers will require public health resources at entry points. Persons traveling from an affected area who become ill in transit should be separated from fellow travelers (if possible) on board. Illness among travelers should be reported to health authorities in the countries of embarkation, destination, and transit (if any). Upon arrival, newly ill persons should be referred for medical care and influenza testing. Ill travelers arriving in an area where influenza has not begun to circulate should be isolated for a minimum of 5 days, and contacts to the ill traveler should be quarantined for 10 days. Isolation and quarantine facilities for non-resident travelers should be identified in advance and will be needed during the late pandemic alert period and early in the pandemic phase. Local and state health department personnel may be needed to support federal quarantine station personnel at land, water, and air ports of entry. An assessment checklist for isolation or quarantine in the home or community-based facility is contained in Appendix 8-A.

Two features of influenza will limit the usefulness of isolation and quarantine during an influenza pandemic:

- Influenza's short incubation period makes it difficult to identify and quarantine contacts of infected persons before they also become ill and have spread infection to others.
- A high rate of asymptomatic illness means infected persons will not be identified and their contacts not known and quarantined.

Because of the uncertainty of the benefits of quarantine for pandemic influenza, the effectiveness and compliance with such measures and the resources necessary to initiate and enforce compliance should be continually evaluated.

Case isolation will be valuable during all phases of pandemic influenza. Isolation of cases when the novel virus first emerges can slow the initial spread of the pandemic. During later pandemic phases, isolation will reduce the risk of exposing uninfected persons.

Quarantine of contacts can be justified for a limited range of situations. Quarantine is appropriate:

- In the area where the novel virus first emerges;
- When the novel virus first arrives in a new area;
- When the number of cases is limited and when all local cases are either imported or have clear epidemiologic links to other cases;
- Intervention is likely to either significantly slow the spread of infection or to decrease the overall magnitude of an outbreak in the community.

Detailed guidance for the identification and management of contacts, including quarantine, appears in Appendix 8-B, along with a contact record form (Appendix 8-C) and daily log of temperature and symptoms (Appendix 8-D). A tracking form for following up with contacts is provided in Appendix 8-E. Quarantine should be coupled with monitoring of exposed persons for symptoms and provision of medical care and infection control precautions as soon as symptoms are detected (see Sections 6 and 7). Enforcement of isolation and quarantine orders may require assistance from law enforcement and the courts.

B. Community Prevention

Containment strategies aimed at controlling and slowing the spread of a novel virus include measures that affect:

- Individuals or groups of exposed persons (e.g., isolation of patients and quarantining of their contacts), and
- Entire communities (e.g., cancellation of public gatherings; implementation of community-wide snow days).

Guided by epidemiologic data, state and local authorities will implement the most appropriate measures to maximize impact on disease transmission and minimize impact on individual freedom of movement.

1. Isolation and quarantine of infected/ill persons or groups of exposed persons

These measures include:

- Case isolation at home or in a special isolation facility;
- Quarantine of groups of exposed persons, including:
    - Persons exposed to an influenza case via family members, at a public gathering, on an airplane or cruise ship or other closed conveyance, at their school or workplace, or
    - Healthcare providers who work at a facility where influenza cases receive care.

The purpose of isolation and quarantine is to reduce influenza transmission by separating infected persons from uninfected persons, exposed persons from non-exposed persons, and monitoring exposed persons for symptoms and providing medical care and infection control precautions as soon as symptoms are detected. Case isolation and quarantine and monitoring of exposed persons may be accomplished by various arrangements (e.g., home isolation or quarantine, isolation or quarantine in a designated facility, etc.).

Case isolation will be valuable during all phases of pandemic influenza. Guidance for the care of an ill person who does not require hospitalization and is isolated at home, including infection control, can be found in Section 4: Infection Control, and Section 5: Clinical Guidelines. Isolation conducted in healthcare settings is discussed in these same sections. Home-based and alternate facility-based isolation and quarantine is discussed below.

The home is generally the preferred setting for isolation and quarantine, but alternative sites for isolation and quarantine may be necessary in certain situations. For example, persons who do not have a home suitable for this purpose or those who require isolation or quarantine away from home (e.g., during travel or homeless) will need to be housed in an alternative location. Special isolation facilities and staffing should be identified in advance and be available to operate beginning in the late pandemic alert period and throughout the pandemic phase. Quarantine facilities and staffing should be identified in advance and will be needed during the late pandemic alert period and early in the pandemic phase.

A home/facility checklist to assess the suitability of a home or facility for isolation and quarantine is in Appendix 8-A. Necessary support services for the home and for isolation and quarantine facilities are described below in Part C – Community Support.

Monitoring of cases isolated at home or in a special facility and monitoring of contacts quarantined at home or in a special facility will be needed during the late pandemic alert period and early in the pandemic phase. When the pandemic becomes widespread, public health monitoring of cases and quarantined persons will no longer be justified. NYSDOH, in consultation with federal health authorities, will advise LHDs regarding when individual case management of persons in isolation and quarantine is warranted. Detailed guidance for the identification and management of contacts, including quarantine, appears in Appendix 8-B, along with a contact record form (Appendix 8-C) and daily log of temperature and symptoms (Appendix 8-D). A tracking form for following up with contacts is provided in Appendix 8-E. Quarantine should be coupled with monitoring of exposed persons for symptoms and provision of medical care and infection control precautions as soon as symptoms are detected. Plans should be developed for instances requiring the enforcement of isolation and quarantine measures.

Contacts of influenza patients can be managed by various interventions designed to facilitate early recognition of illness in persons at greatest risk of becoming infected and thereby prevent transmission to others. Measures applied to individuals may not be feasible or effective during the Pandemic Period, when tracing and quarantining of close

contacts may not be possible. The range of interventions is more fully described in Appendix 8-F. Pandemic influenza may involve a second and third wave of infection. It may be appropriate to resume case and contact tracing and quarantining of contacts at the beginning of new waves of infection.

2. Measures that affect entire communities

Later in a pandemic, when disease transmission is occurring in communities throughout New York State, efforts directed at individuals and groups of exposed persons are much less likely to slow viral spread and many would not be feasible to implement because of the large number of ill persons and their contacts. Community-based containment measures directed at the entire community that decrease social contact (e.g., self-shielding, closing schools, restricting/cancellation of public buildings/events/gatherings, snow days) and emphasize what individuals can do to reduce their risk of infection (e.g., hand hygiene and cough etiquette) may be more effective disease control tools.

These measures should be initiated 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; and
- Significant delay between a case's onset of symptoms and their isolation because of the large number of ill persons.

Possible measures include:

- Promotion of community-wide infection control measures including respiratory hygiene/cough etiquette, hand hygiene, and avoiding public gatherings (e.g., movies, religious services, public meetings). Persons at high risk for complications of influenza should also avoid going to public areas (e.g., food stores, pharmacies); the use of other persons for shopping or home delivery service is encouraged.
    - 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. Nevertheless, persons may choose to wear a mask as part of an individual protection strategy that includes 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. Supply issues should be considered so that mask use in communities does not limit availability for healthcare settings where the importance and effectiveness of mask use has been documented.

- Snow days and self-shielding - Implementation of "snow days" - asking everyone to stay home - involves the entire community in a positive way. Snow days may be instituted for an initial 10-day period, with a final decision on duration based on an epidemiologic and social assessment of the situation. Recommendations should be made available to the public to acquire and store necessary provisions and supplies needed during snow days. Snow days can effectively reduce transmission without explicit activity restrictions (i.e., quarantine). Exceptions must be made for personnel who maintain primary functions in the community (e.g., law enforcement personnel, transportation workers, utility workers involved with electricity, water, gas, telephone, and sanitation). Voluntary "self-shielding" behavior may precede an official snow day declaration (i.e., many people may elect to stay home or limit their activity even in the absence of an official snow day).

- Closure of office buildings, shopping malls, schools, and public transportation are potential community containment measures during a pandemic. Each of these will have a significant impact on the community and workforce, and careful consideration should be focused on their potential to slow person-to-person spread of influenza. Broad community involvement will to needed for effective implementation, while at the same time maintaining essential community services. For example, when public transportation is cancelled, other modes of transportation must be provided for persons needing medical evaluation. Anecdotal reports suggest that community influenza outbreaks may be limited by closing schools, especially when schools are closed early in the outbreak. In addition, the risk of infection and illness among children is likely to be decreased, which would be particularly important if the novel strain causes significant morbidity and mortality among children. Children are known to be efficient transmitters of seasonal influenza and other respiratory illnesses. During a Pandemic Period, parents should be encouraged to consider child care arrangements that do not result in large gatherings of children outside the school setting.

- Containment measures may be applied to the 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 referred to as "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, movie theatres)

School systems, businesses, community infrastructure providers, and other employers should develop plans for continuity of essential operations and modified operation during "snow days." Employers should anticipate that 25 to 30% of persons will become ill during a 6 to 8 week outbreak, although a lower percentage of working-aged adults will

themselves be ill. In addition, about 10% of the workforce will be absent due to illness of a family member. Others may stay home due to a fear of becoming infected.

Workplace closure may result in loss of income for affected workers. Such workers will be referred for available public and private assistance.

Worksites identified as part of the State's critical infrastructure have a higher ranking to receive vaccine and antivirals. Critical infrastructure groups are those that have an impact on maintaining health (e.g., public safety, transportation of medical supplies and food); implementing the pandemic response plan; and maintaining societal functions. See Sections 6 and 7 on vaccine and antiviral medications for additional details.

In the event of pandemic influenza, businesses will play a key role in protecting employees' health and safety as well as limiting the negative impact to the economy and society. To assist planning, the Department of Health and Human Services (HHS) and the Centers for Disease Control and Prevention (CDC) have developed a checklist for large businesses (Appendix 8-G). It identifies important, specific activities large businesses can do now to prepare, many of which will also help in other emergencies. All plans should remain living documents that will need to be updated before, during, and after a pandemic. All plans should be exercised to identify weaknesses and promote effective implementation. Pandemic influenza response can be optimized by effectively engaging stakeholders during all phases of pandemic planning and response.

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; and
- Effective protective countermeasures being in place (e.g., high coverage with a pandemic influenza vaccine)

A general recommendation is to withdraw the most stringent or disruptive measures first.

C. Community Support and Special Populations

Community support for provision of food, medical supplies (including delivery of prescription medications), mental health services, and other essentials may be required by ill persons who are isolated or quarantined at home or in special isolation and quarantine facilities. Providing a range of services will be especially important if isolation and quarantine are implemented as strategies to decrease the transmission of infection. Local community resources must be identified to support persons caring for themselves and family members at home, and for those in a specialized isolation and/or quarantine facility. Plans should be developed at the local level by public health and emergency managers along with groups that can provide community support services. Community support strategies may already have been developed as part of preparedness planning for other public health emergencies – either natural or as a result of a bioterrorist attack. Local communities are encouraged to identify civic organizations and other volunteers to

meet these needs (e.g., American Red Cross). Local agencies already engaged in providing services to the homebound (e.g., Meals-on-Wheels) may become the nucleus for voluntary efforts to provide services to people confined to their homes or specialized facilities. Additional volunteers may be needed to assist with community support activities.

Certain groups will be hard to reach, including people whose primary language is not English, people who are homeless, and people who are hearing and visually impaired. Services may be especially important for older adults who are likely to be most impacted by pandemic influenza. Service providers must be identified who can ensure that information and services are accessible to these hard to reach/special needs groups.

D. Additional Considerations

1. Public Information and Understanding of Disease Containment Measures

The success of travel-related disease control and community prevention activities described above relies on a coordinated public information campaign targeted at improving public understanding of pandemic influenza and the benefits of individual and community wide disease control practices, including social-distancing measures that reduce disease transmission and prevent illness and death. The success of disease control will be facilitated by clear communication of the rationale for and duration of containment measures. The public information campaign may include information hotlines and community triage resources.

2. Legal Implications

A general guide to New York State laws governing public health emergency preparedness and response (including reference to isolation and quarantine) is included in Section 1: Command and Control.

A review of pertinent legal authorities, laws and procedures for isolation and quarantine, closing businesses or schools, and suspending public meetings during a declared state of emergency is necessary. The New York State Department of Health (NYSDOH), Division of Legal Affairs, has developed a Model Voluntary Home Isolation Agreement and a Model Voluntary Home Quarantine Agreement (Appendix 8-H) for LHD use when asking a suspect or probable influenza patient or contact to submit to voluntary isolation or quarantine. The LHD should provide the appropriate agreement to patients with influenza symptoms or contacts as a means to instruct them on the necessary infection control precautions to be taken to prevent transmission to family members, friends, and other outside contacts. These agreements are not legally binding contracts with the patient or contact, but they clearly spell out what the LHD expects of the patient or contact and his/her family. These agreements may also be useful as evidence for the LHD in any subsequent court proceeding seeking involuntary isolation or quarantine, as it would show what was expected of the patient or contact and that the patient or contact was informed of these expectations, and that the LHD tried voluntary measures prior to

seeking assistance from the court. These models may be used as is or the LHD may choose to modify them as necessary to meet the needs of the particular situation, especially with regard to quarantine. We encourage LHDs to add or remove provisions or change the language of the agreements as necessary to make them more patient-specific.

Section 1, Command and Control, contains appendices on the NYSDOH General Counsel's opinion regarding the quarantine powers of local health officers and boards of health, and the NYS Education Law regarding school closure during an emergency.

IV. Roles and Responsibilities by Pandemic Period

Interpandemic and Pandemic Alert Periods

State Health Department:

- Develop plans with state partners on how the state will respond to pandemic influenza, including law enforcement, first responders, healthcare facilities, mental health professionals, local businesses, and the legal community. Address legal, logistic, and social challenges associated with individual and community-based containment measures. Identify procedures at the State-level for issues related to employment compensation and job security.
- Identify potential surge capacity for isolation and quarantine as a back-up to LHD capacity.
- Advise LHDs when to implement isolation of ill persons and quarantine of contacts arriving from an area where pandemic influenza has emerged.
- Review pertinent legal authorities and how they apply in a public health emergency, in particular, laws and procedures for closing businesses or schools and suspending public meetings during a declared state of emergency.
- Improve readiness to implement travel-related disease containment measures.
- Provide public health information to travelers who visit areas countries where pandemic influenza has been reported.
- Investigate illness among travelers returning from affected areas and implement isolation and quarantine, as needed.

Local Health Departments:

- Develop a community response plan for pandemic influenza in collaboration with local partners, including law enforcement, first responders, healthcare facilities, mental health professionals, local businesses, and the legal community.
- Develop plans for isolating ill persons and quarantining of contacts at home and at special isolation and quarantine facilities, including identification of appropriate staff. Conduct training.
- Develop plans to provide community support services for the provision of food, water, medicine and medical consultation, transportation to medical

treatment, if required, and other essential supplies/services (e.g., day care or elder care) to those confined at home, hard to reach/special needs groups, children, and persons with disabilities. Conduct training.
- Promote awareness of CDC and WHO travel advisories.
- During the pandemic alert period, implement individual-level containment measures (e.g., patient isolation and identification, monitoring, and quarantine of contacts) that may be useful in slowing the spread of pandemic influenza.
- Consider community-level containment measures that decrease social contact within groups or whole communities (e.g., quarantine of groups of exposed persons, cancellation of public events, closing recreational facilities, public buildings, snow days, and self-shielding).

Schools, Workplaces:
- Develop a pandemic plan that includes continuity of essential operations and modified operation during "snow days." Identify procedures for issues related to employment compensation and job security.

Shopping Areas, Theatres, Sports Arenas:
- Develop a pandemic plan for containment measures that decrease social contact (e.g., cancellation of public events, closing recreational facilities and public buildings, and snow days).

Pandemic Period

State Health Department:
- Early in the pandemic period, support federal quarantine station personnel at all land, water, and air ports of entry.
- Implement procedures at the State-level for issues related to employment compensation and job security.
- Determine when individual case management and travel-related containment measures are not warranted and advise LHDs.
- Coordinate operation of isolation and quarantine as a back-up to LHD capacity.

Local Health Departments:
- Implement community response plan for pandemic influenza in collaboration with local partners.
- Isolate ill persons and quarantine contacts to the ill person arriving in an area where influenza has not begun to circulate, as needed.
- Conduct assessments of homes and special isolation and quarantine facilities to ensure their suitability for isolation and quarantine.
- Coordinate the monitoring of individuals in isolation and quarantine for as long as individual case management is warranted.
- Coordinate operation of specialized isolation facilities, as needed.
- Coordinate community-level containment measures that decrease social contact within groups or whole communities (e.g., quarantine of groups of

exposed persons, cancellation of public events, closing recreational facilities, public buildings, snow days, and self-shielding).
- Early in the pandemic period, support federal quarantine station personnel at all land, water, and air ports of entry.
- Activate local plans to coordinate community support services.

Schools, Workplaces:
- School systems, community infrastructure providers and employers should implement pandemic plans. Implement procedures for issues related to employment compensation and job security.

Shopping Areas, Theatres, Sports Arenas:
- Implement community-level containment measures that decrease social contact (e.g., cancellation of public events, closing recreational facilities and public buildings, and snow days).

Home or Community-Based Facility Isolation or Quarantine Assessment Checklist

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 (home or facility) 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 home or facility evaluation should be performed on site by a public health official or designee.

Date: _____/_____/_____ Tracking ID/Bar Code

Patient/Facility Name: _____

Address: _____

_____

Patient Telephone Number (_____) _____ - _____

Primary Caregiver Name: Last_____First:_____

Primary Caregiver Telephone Number (_____) _____ - _____

Inspectors Name: Last_____First: _____

Type of Home/Facility

- ☐- Single Family/Single Unit
- ☐- Single Family/Multiple Unit
- ☐- Single Family/Apartment
- ☐- Community-Based Facility (describe) _____
- ☐- Other (describe)_____

Number of Occupants in home/facility_____

_____ Number of (bed)rooms

_____ Number of bathrooms

Consideration	Yes	No
Basic utilities (running water, electricity, adequate heating or air-conditioning)		
Central Air Conditioning		
Has the central air conditioning unit/system been modified to prevent air from the influenza patient's room from circulating throughout the home/facility?		
Window Air Conditioning Units Number of units _____		
Is the air conditioning unit condensate drain hard-plumbed to the sewer system? * Cooling is accomplished by removing moisture from the air and the condensate liquid may contain infectious material and should be handled accordingly.		
Services for removal of waste. (No special precautions for removal of waste are required as long as persons remain asymptomatic.)		
Adequate rooms and bathrooms for each case/contact		
Is there a separate (bed)room available to be used only by each influenza patient during the isolation period?		
Can the (bed)room window be opened?		
Is each (bed)room physically separated by walls from adjacent rooms?		
Does each (bed)room have a door which can be kept closed?		
Is there a designated bathroom for the influenza patient(s)?		
Is the patient area carpeted?		
Mechanism for communication, including functioning telephone (for monitoring by health staff, reporting of symptoms, gaining access to support services, and communicating with family)		
Access to food and food preparation		
Delivery systems for food, supplies, and other needs		
Mechanism for addressing special needs (e.g., filling prescriptions)		
Basic supplies (clothing, linens, etc.)		
Sufficient medical supplies (gloves, surgical masks, hand-hygiene supplies and disinfectant)		
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)		
Available household member/facility staff person to be the patient's primary caregiver (isolation) and/or monitor contacts at least daily for fever and respiratory symptoms (quarantine)		
Accessibility to healthcare workers or ambulance personnel		
Transportation for treatment/medical evaluation for persons who worsen (isolation) or develop symptoms (quarantine)		
Access to mental health and other psychological support services.		
Adequate security for those in the home/facility		
Sign posted on the patient's door restricting access only to the Caregiver/Staff		
Other occupants of the home relocated (if possible)		
Contingency for emergencies been developed (e.g., who to notify)		
Caregiver(s), Staff and patient(s) instructed on the proper procedures for disposing of waste materials and laundering		
Caregiver/staff instructed how to clean/disinfect the influenza patient's room		
Patient(s) instructed to restrict his/her mobility and take precautions (e.g. surgical mask)		

Contact Identification and Management

Surveillance of contacts of cases infected with a novel influenza virus may be helpful in *early* control efforts. Through rapid identification, evaluation, and monitoring of exposed contacts, further transmission of disease may be prevented or reduced. Contacts who are found to be clinically ill can be quickly isolated to avoid further novel influenza virus transmission. When contact identification and management is indicated, surveillance of contacts will be conducted by LHDs, with assistance from NYSDOH as needed. NYSDOH, in consultation with CDC and LHDs, will provide guidance regarding if and when contact tracing should be conducted.

- **Definitions**
  - **Close Contact**: A person who cared for or lived with a person with a novel influenza virus or who had a high likelihood of direct contact with respiratory secretions and/or body fluids of a person with a novel influenza virus (during encounters with the patient or through contact with materials contaminated by the patient), during the period of 24 hours prior to the patient's onset to 14 days after onset of symptoms (*note: the definition of the infectious period is under discussion with the CDC*). Examples of close contact include kissing or embracing, sharing eating or drinking utensils, close conversation (< 3 feet), physical examination, and any other direct physical contact between persons. Close contact does not include activities such as walking by a person or sitting across a waiting room or office for a brief time.

  - **Infectious Period**: Period of time from the 24 hours prior to onset symptoms to up to 14 days after the onset of symptoms (*note: the definition of the infectious period is under discussion with the CDC*).

- **Contact Identification and Tracing**
  - Determine the time period in which the case was infectious.
  - Initiate identification of a case's contacts as soon as possible after a diagnosis of probable or confirmed infection with a novel influenza virus.
    - Obtain information about the case and all contacts from the case, next of kin, workplace representatives, or others with appropriate knowledge of the case-patient's recent whereabouts and activities.
  - Attempt to locate and contact all <u>close contacts</u> within 12 hours of the case/contact report.
    - Use work and school contact numbers, telephone directories, voting lists, neighborhood interviews, site visits, etc. to trace contacts when locating information is unknown or incomplete.
    - If having difficulty locating a contact, consult with STD and/or TB staff who have contact tracing experience.

- If the contact has left the county and/or state, notify the NYSDOH Regional Epidemiologist.

- **Contact Evaluation and Monitoring**
  - Alert contacts of their potential exposure to a novel influenza virus.
  - Verify exposures.
    - Verify exposure to index case during the period of infectiousness.
    - Verify the type of exposure.
  - If initial contact is made at a home or workplace visit, the appropriate personal protective equipment (PPE) should be utilized since the contact's health status will be unknown.
  - Evaluate contact's health status using the Pandemic Influenza Contact Record Form (Appendix 8-C).
  - Ensure prophylaxis is provided, if indicated.
  - Identify any additional contacts who may not have been listed by the index case.
  - Enter data from the Contact Record Form on the HIN.
  - Consider quarantine of contacts based on the level of influenza activity:
- **Ill Contacts**
  - If the contact is febrile or has respiratory symptoms, make arrangements for a medical evaluation by a healthcare provider.
    - Ensure that the medical facility staff are informed and prepared to handle a suspect novel influenza virus case.
    - Ensure that the contact does not take public transportation en route to their medical evaluation.
    - Advise the contact to remain at home and use respiratory precautions until they are evaluated by a healthcare provider.
  - Ill contacts should be counseled, interviewed, and reported as a suspected novel influenza virus case using the Pandemic Influenza Case Reporting Form (see Section 2: Surveillance and Laboratory Testing), and his/her contacts should be identified using the Pandemic Influenza Contact Record Form (Appendix 8-C).
- **Well Contacts**
  - Initiate plans for ongoing symptom monitoring for 10 days after their last exposure to a novel influenza virus case. Monitoring of contacts may be active (e.g., regular workplace body temperature monitoring by a supervisor) or passive (e.g., self monitoring of symptoms and temperature by the contact with reporting to the local health department at least once a day).

        - Determine the time period in which the contact must be monitored (10 days after last exposure).
        - Provide thermometers to any contacts who do not have and are not willing to purchase one.
        - Provide contact with a daily temperature/symptom log (Appendix 8-D).
        - Complete the Pandemic Influenza Contact Daily Temperature Log Tracking Form (Appendix 8-E). Update the form each day.
        - Enter contact monitoring/symptom data on the HIN.
    - Provide information on seeking medical care should the contact develop fever and/or respiratory symptoms while they are being monitored.
        - Immediately notify the LHD.
        - Seek medical evaluation by a healthcare provider.
        - Ensure the medical facility is informed and prepared to handle a suspect novel influenza virus case.
        - Ensure the contact does not take public transportation en route to their medical evaluation.
        - Advise the contact to remain at home and use respiratory precautions until they are evaluated by a healthcare provider.

Modify, as needed, existing procedures for locating contacts who are lost to follow-up during the monitoring period.

Appendix 8-C

Contact Record Form

Original Patient Serial No: _____ Index Case No: _____

Name: _____

Sex: _____ DOB: _____ Race/Ethnicity: _____

Pregnant: _____ Underlying Medical Conditions: _____
_____

Contact Information:

Home Address:
_____
_____
_____

Work Address:
_____
_____
_____

Phone: _____

Phone: _____

Cellular Phone: _____

Exposure History:

First Exposure: _____
Last Exposure: _____

Frequency/Duration: _____
Exposure Ongoing? _____

If HCW, PPE Used:

Eye Protection: Y / N
Respiratory: Y / N
Gown: Y / N
Gloves: Y / N
Aerosol Generating Procedure? Y/N

Describe: _____

Type of Exposure: _____
Exposure Timing: _____

Outcome:

Date Notified: _____

Symptoms Present? _____

If Yes, Date of Onset: _____ Symptom Type: _____
Date of Resolution: _____

Medical Exam? _____ If Yes, Date of Exam: _____

Start of Quarantine: _____ End of Quarantine: _____

Administrative Data:

Supervisor: _____ Initiating Agency: _____

Investigating Agency: _____ Disposition: _____
Disposition Date: _____

Assigned To: _____ Dx. _____
Dx. Date: _____

Worker No. _____ If New Case Enter HIN#: _____

Notes:

_____

_____

Contact Daily Temperature Log

Name: _____ Date of Birth: _____

Since you may have been exposed to a new strain of influenza virus through either foreign travel or close contact to someone who is ill with this virus, you need to monitor you temperature twice a day. This should be done for the 10 days following your exposure (date of return from travel or date of last close contact with the ill person). Your local health department will provide you with the exact dates. You have been provided this chart, the recommended infection control precautions for patients with this new strain of influenza and a supply of facial masks.

The attached chart is to record your temperature daily and any respiratory symptoms, should they occur. If you develop a fever (greater than 100.4) OR any respiratory symptoms, such as cough or shortness of breath:

- Notify your health care provider immediately.
- If you are able, contact your local health department.
- Before leaving your home to seek medical attention, place a mask on your face.

The local health department will be contacting you daily to monitor your temperature and any symptoms. If you have any questions about monitoring for symptoms, please contact _____ at _____.

You may wish to enter your health care provider's name and telephone below for easy reference should you become ill.

Health Care Provider: _____

Telephone Number: _____

CONTACT DAILY TEMPERATURE LOG

Name: ________________________________ Date of Birth: ______________

Date	Morning Temperature	Evening Temperature	Cough	Shortness of Breath	Other Symptoms (Describe)
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	
			Y N	Y N	

Appendix 8-E

Contact Daily Temperature Log Tracking Form

Name: ___________________Date of Birth: _______________Telephone No. ______________

Date	**Morning Temperature**	**Evening Temperature**	**Cough**	**Shortness of Breath**	**Other Symptoms (Describe)**	**Unable to Locate**	**Person Who Conducted Follow-up**
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
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			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			
			Y N	Y N			

Definitions: Interventions for Community Containment

Source: Adapted from the November 2005 HHS Pandemic Influenza Plan, Supplement 8, Appendix 1

The ultimate goal of isolation and quarantine is to separate and restrict the movement or activities of persons who are ill, suspected of being ill, or who have been exposed to infection, for the purpose of preventing transmission of diseases.

Isolation

Restriction of movement or separation from other persons, in such places, under such conditions, and for such time, as will prevent transmission of the infectious agent, of persons known to be ill or suspected of being infected with contagious disease (10 NYCRR 2.25(d)).

- Isolation allows for the focused delivery of specialized health care to persons who are ill, and it protects healthy persons from becoming ill.
- Ill persons are usually isolated in a hospital, but they may also be isolated at home or in a designated community-based facility, depending on their medical needs.

"Isolation" is typically used to refer to actions performed at the level of the individual patient.

Quarantine

Restriction of movement and activities or separation of well person(s) believed to have been exposed to a contagious disease (household contacts and/or incidental contacts) to premises designated by the health officer (10 NYCRR 2.25(f)).

- Persons are usually quarantined in their homes, but they may also be quarantined in community-based facilities.
- Quarantine can be applied to an individual or to a group of persons who are exposed at a large public gathering or to persons believed exposed on a conveyance during to international travel.
- Quarantine can also be applied on a wider population- or geographic-level basis. Examples of this application include the closing of local or community borders or erection of a barrier around a geographic area with strict enforcement to prohibit movement into and out of the area.

Contacts of pandemic influenza patients can be managed by use of a range of interventions, all of which are designed to facilitate early recognition of illness in persons at greatest risk of becoming infected and thereby prevent transmission to others. Whereas many of these interventions are applied individually to persons identified as contacts of a person with possible or known influenza disease, others are applied to larger groups of persons, or communities, which share a similar risk of exposure. Measures applied to individuals may not be feasible during the Pandemic Period, when quarantining individuals and tracing close contacts may not be possible. The range of interventions includes the following:

Passive Monitoring

- *Definition:* The contact is asked to perform self-assessment at least twice daily and to contact authorities immediately if respiratory symptoms and/or fever occur.
- *Application:* Situations in which 1) the risk of exposure and subsequent development of disease is low, and 2) the risk to others if recognition of disease is delayed is also low.
- *Benefits:* Requires minimal resources. Places few constraints on individual movement.
- *Challenges:* Relies on self-reporting. Affected persons may not perform an adequate self-assessment.
- *Resources Required:* Supplies (thermometer; symptom log; written instructions). Hotline to notify authorities about symptoms or needs. Staff to receive telephone reports and provide in-person evaluation and care. Plans and procedures for rapid isolation of persons who develop symptoms.
- *Partners:* Household members.
- *Forms/Templates:* Symptom logs. Instructions for patients and healthcare workers

Active Monitoring without Explicit Activity Restrictions

- *Definition:* A healthcare or public health worker evaluates the contact on a regular (at least daily) basis by phone and/or in person for signs and symptoms suggestive of influenza.
- *Application:* Situations in which 1) the risk of exposure to and subsequent development of disease is moderate to high, 2) resources permit close observation of individuals, and 3) the risk of delayed recognition of symptoms is low to moderate.
- *Benefits:* Places few constraints on individual liberties.
- *Challenges:* Requires adequate staffing. Requires a system to track information and to verify monitoring and appropriate actions based on findings.
- *Resources Required:* Trained staff to provide in-person and/or telephone evaluations. Plans and procedures for rapid isolation of persons who develop symptoms. Contingency plans for managing noncompliant persons. Hotline to notify authorities about symptoms or needs.
- *Partners:* Professional and lay healthcare workers to perform evaluations on behalf of the health department. Possible need for law enforcement to assist with management of noncompliant persons
- *Forms/Templates:* Checklist for assessment of active monitoring. Template for recording results of clinical evaluation.

Active Monitoring with Activity Restrictions (Quarantine)

- *Definition:* The contact remains separated from others for a specified period (up to 10 days after potential exposure), during which s/he is assessed on a regular basis (in person at least once daily) for signs and symptoms of influenza disease. Persons with fever, respiratory, or other early influenza symptoms require immediate evaluation by a trained healthcare provider. Restrictions may be voluntary or legally mandated; confinement may be at home or in an appropriate

facility. No specific precautions are required for those sharing the household with a person in quarantine as long as the person remains asymptomatic. Because onset of symptoms may be insidious, it may be prudent to minimize interactions with household members during the period of quarantine, if feasible.

- *Application:* Situations in which the risk of exposure and subsequent development of disease is high and the risk of delayed recognition of symptoms is moderate.
- *Benefits:* Reduces risk of spread from persons with subacute or subclinical presentations or from delayed recognition of symptoms.
- *Challenges:* May infringe on personal movement. May lead to a feeling of isolation from family and friends. May lead to loss of income or employment. Requires plans/protocols for provision of essential services. Requires plan for provision of mental health support. Risk of noncompliance, particularly as duration increases. May require enforcement for noncompliance.
- *Resources Required:* Staff for monitoring and evaluation. Appropriate facility if home setting is unavailable or inadequate. Staff, funding, and goods for provision of essential services. Hotline for notification of symptoms or personal needs. Mechanisms to communicate with family members outside the household or facility. Mental health and social support services. Delivery systems for food and other essential supplies.
- *Partners:* Professional and lay healthcare workers to perform assessments on behalf of the health department. Community volunteers/workers to assist with provision of essential services. Potential need for law enforcement to assist with noncompliant persons.
- *Forms/Templates:* Checklist for active monitoring. Template for recording results of clinical evaluation. Checklist and guidelines for evaluation of homes for quarantine. Checklist and guidelines for evaluation of community-based sites for quarantine. Guidelines for monitoring compliance with home quarantine. Guidelines for monitoring compliance with quarantine in community-based facilities. Forms for recording compliance with quarantine.
- *Examples:* Home quarantine (voluntary or mandatory). Facility quarantine (voluntary or mandatory).

Working Quarantine

- *Definition:* Employees exposed to pandemic influenza but not yet ill are permitted to work but must observe activity restrictions while both on and off duty. Monitoring for influenza-like illness before reporting for work is usually required. This may change based on the clinical presentation of the novel strain. Use of appropriate PPE, including a surgical or procedure mask while at work, is required.
- *Application:* Persons for whom activity restrictions (home or facility quarantine) are indicated but who provide essential services (e.g., healthcare workers).
- *Benefits:* Reduces risk of community spread from high-risk contacts while minimizing adverse impact of activity restrictions on provision of essential services. Clinical monitoring at work reduces the staff required for active monitoring at the quarantine site.

- *Challenges:* Need for close and consistent pre-shift monitoring at the work site to prevent inadvertent exposures. May require means of transporting persons to and from work site to minimize interactions; persons in working quarantine should wear appropriate PPE during transport. Must maintain close cooperation and communication between work site and local health authorities. Need to provide mental health services to address concerns about isolation from family and friends.
- *Resources Required:* Appropriate facility for off-duty quarantine if home is unavailable or inadequate. Staff, funding, and goods for provision of essential services. Personal protective equipment. Hotline for notification of symptoms and personal needs. System to track results of work-site monitoring and location(s) of off-duty quarantine. Mental health, psychological, and behavioral support services, especially if work includes care of influenza patients.
- *Partners:* Work-site administrators and infection control personnel. Community volunteers/workers. Staff/volunteers to assist with transportation to and from work. Mental health professionals. Potential need for law enforcement to assist with noncompliant persons.
- *Forms/Templates:* Guidelines and instructions for persons in working quarantine. Instructions for supervisors of persons in working quarantine. Checklist to evaluate homes for quarantine. Guidelines for monitoring compliance. Checklist for active monitoring at work site. Template for recording results of clinical evaluation. Forms for recording compliance.

Focused Measures to Increase Social Distance

- *Definition:* Intervention applied to specific groups, designed to reduce interactions and thereby transmission risk within the group. When focused, the intervention is applied to groups or persons identified in specific sites or buildings, most but not necessarily all of whom are at risk of exposure to influenza.
- *Examples:* Quarantine of groups of exposed persons. Cancellation of public events. Closure of office buildings, schools, and/or shopping malls; closure of public transportation such as subways or bus lines.
- *Application:* Groups or settings where transmission is believed to have occurred, where the linkages between cases is unclear at the time of evaluation, and where restrictions placed only on persons known to have been exposed is considered insufficient to prevent further transmission.
- *Benefits:* Applied broadly, reduces the requirement for urgent evaluation of large numbers of potential contacts to determine indications for activity restrictions. May enable reductions in transmission among groups of persons without explicit activity restrictions (quarantine).
- *Challenges:* May be difficult to solicit cooperation, particularly if popular buildings are closed or popular events are cancelled. Requires excellent communication mechanisms to notify affected persons of details and rationale. May need to provide replacement for affected activities (e.g., school, essential services). Generally relies on passive monitoring.

- *Resources Required:* Systems to communicate relevant messages. May require enforcement, particularly if closure of buildings or gathering places is necessary. Requires resources for passive monitoring. Hotlines to report symptoms and obtain follow-up instructions. Transportation for medical evaluation, with appropriate infection control precautions.
- *Partners:* News media and communication outlets. Law enforcement. Community groups.
- *Forms/Templates:* Messages for affected persons. Messages for employers of affected persons. Messages for persons supplying essential services.

Community-Wide Measures to Increase Social Distance

- *Definition:* Intervention applied to an entire community or region, designed to reduce personal interactions and thereby transmission risk. The prototypical example is implementation of a "snow day," in which offices, schools, and transportation systems are cancelled as for a major snowstorm.
- *Examples:* Snow days.
- *Application:* All members of a community in which 1) extensive transmission of influenza is occurring, 2) a significant number of cases lack clearly identifiable epidemiologic links at the time of evaluation, and 3) restrictions on persons known to have been exposed are considered insufficient to prevent further spread.
- *Benefits:* Reduces need for urgent evaluation of large numbers of potential contacts to determine indications for activity restrictions. May enable reductions in transmission among groups without explicit activity restrictions (quarantine). "Snow days" are familiar concepts and thus are easy to implement on short notice.
- *Challenges:* May be difficult to solicit cooperation. Requires excellent communication mechanisms to notify affected persons of details and rationale. May need to provide replacement for affected activities (e.g., school, essential services). May need to address mental health and financial support issues. When an entire community is involved, requires cooperation with neighboring jurisdictions that may not be using a similar intervention, particularly in situations where persons live in one city and work in another and only one locale is affected by the intervention. Generally relies on passive monitoring. Social and economic impact of public transportation closures.
- *Resources Required:* Communication outlets. Enforcement. Resources for passive monitoring. Hotlines and other communication systems to report symptoms and obtain follow-up instructions.
- *Partners:* News media and other communication outlets. Law enforcement and transportation officials to enforce restrictions (e.g., closure of bridges, roads, or mass transit systems) and plan for provision of critical supplies and infrastructure.
- *Forms/Templates:* Messages for affected persons. Messages for employers of affected persons. Messages for persons supplying essential services.

Widespread Community Quarantine, Including *Cordon Sanitaire*

- *Definition:* Legally enforceable action that restricts movement into or out of the area of quarantine of a large group of people or community; designed to reduce the likelihood of transmission of influenza among persons in and to persons

outside the affected area. When applied to all inhabitants of an area (typically a community or neighborhood), the intervention is referred to as *cordon sanitaire* (sanitary barrier).

- *Application:* All members of a group in which 1) extensive transmission is occurring, 2) a significant number of cases lack identifiable epidemiologic links at the time of evaluation, and 3) restrictions placed on persons known to have been exposed are considered insufficient to prevent further spread. Widespread quarantine is unlikely to be necessary because other less restrictive measures (e.g., snow days) may be equally effective.
- *Benefits:* Reduces need for urgent evaluation of large numbers of potential contacts to determine indications for activity restrictions.
- *Challenges:* Controversial because of the degree that individual movement is restricted. Difficult to solicit cooperation for extended periods, particularly if the rationale is not readily apparent or was not clearly explained. Requires excellent communication mechanisms to inform affected persons and to maintain public confidence in the appropriateness of the chosen course of action. Need to ensure continuation of essential services. Need to provide financial support and mental health support services for the affected population. When an entire community is involved, requires cooperation with neighboring jurisdictions that may not be using a similar intervention, particularly in situations where persons live in one city and work in another and only one locality is affected by the intervention Need to provide mechanisms for isolating symptomatic persons with minimal delay.
- *Resources Required:* Systems to communicate relevant messages. Enforcement to maintain security at borders. Transportation for persons requiring medical evaluation, with appropriate infection control precautions. Staff and supplies to maintain access to and availability of essential services and goods, including food, water, medicine, medical care, and utilities. Psychological support staff. Plan to divert flow of critical infrastructure supplies and materials that normally transit through quarantined area.
- *Partners:* News media and other mass communication outlets. Public and private groups, industries, and officials to coordinate supply and provision of essential services to affected area. Law enforcement to maintain security at borders and to enforce movement restrictions. Transportation industry.
- *Forms/Templates:* Messages for affected persons. Messages for employers of affected persons. Messages for persons supplying essential services.
- *Examples:* Quarantine (*cordon sanitaire*) of a city or town. Quarantine of occupants of a housing complex or office building.

Business Pandemic Influenza Planning Checklist
Source: As released by HHS on 12/14/2006

1. Plan for the impact of a pandemic on your business

Comp-leted	In Progress	Not Started	
			Identify a pandemic coordinator and/or team with defined roles and responsibilities for preparedness and response planning. The planning process should include input from labor representatives.
			Identify essential employees and other critical inputs (e.g. raw materials, suppliers, sub-contractor services/products, and logistics) required to maintain business operations by location and function during a pandemic.
			Train and prepare ancillary workforce (e.g. contractors, employees in other job titles/descriptions, retirees).
			Develop and plan for scenarios likely to result in an increase or decrease in demand for your products and/or services during a pandemic (e.g. effect of restriction on mass gatherings, need for hygiene supplies).
			Determine potential impact of a pandemic on company business financials using multiple possible scenarios that affect different product lines and/or production sites.
			Determine potential impact of a pandemic on business-related domestic and international travel (e.g. quarantines, border closures).
			Find up-to-date, reliable pandemic information from community public health, emergency management, and other sources and make sustainable links.
			Establish an emergency communications plan and revise periodically. This plan includes identification of key contacts (with back-ups), chain of communications (including suppliers and customers), and processes for tracking and communicating business and employee status.
			Implement an exercise/drill to test your plan, and revise periodically.

2. Plan for the impact of a pandemic on your employers and customers

Comp-leted	In Progress	Not Started	
			Forecast and allow for employee absences during a pandemic due to factors such as personal illness, family member illness, community containment measures and quarantines, school and/or business closures, and public transportation closures.
			Implement guidelines to modify the frequency and type of face-to-face contact (e.g. hand-shaking, seating in meetings, office layout, shared workstations) among employees and between employees and customers (refer to CDC recommendations).
			Encourage and track annual influenza vaccination for employees.
			Evaluate employee access to and availability of healthcare services during a pandemic, and improve services as needed.
			Evaluate employee access to and availability of mental health and social services during a pandemic, including corporate, community, and faith-based resources, and improve services as needed.
			Identify employees and key customers with special needs, and incorporate the requirements of such persons into your preparedness plan.

3. Establish policies to be implemented during a pandemic

Comp-leted	In Progress	Not Started	
			Establish policies for employee compensation and sick-leave absences unique to a pandemic (e.g. non-punitive liberal leave), including policies on when a previously ill person is no longer infectious and can return to work after illness.
			Establish policies for flexible worksite (e.g. telecommuting) and flexible work hours (e.g. staggered shifts).
			Establish policies for preventing influenza spread at the worksite (e.g. promoting respiratory hygiene/cough etiquette, and prompt exclusion of people with influenza symptoms).
			Establish policies for employees who have been exposed to pandemic influenza, are suspected to be ill, or become ill at the worksite (e.g. infection control response, immediate mandatory sick leave).
			Establish policies for restricting travel to affected geographic areas (consider both domestic and international sites), evacuating employees working in or near an affected area when an outbreak begins, and guidance for employees returning from affected areas (refer to CDC travel recommendations).
			Set up authorities, triggers, and procedures for activating and terminating the company's response plan, altering business operations (e.g. shutting down operations in affected areas), and transferring business knowledge to key employees.

4. Allocate resources to protect your employees and customers during a pandemic

Comp-leted	In Progress	Not Started	
			Provide sufficient and accessible infection control supplies (e.g. hand-hygiene products, tissues and receptacles for their disposal) in all business locations.
			Enhance communications and information technology infrastructures as needed to support employee telecommuting and remote customer access.
			Ensure availability of medical consultation and advice for emergency response.

5. Communicate to and educate your employees

Comp-leted	In Progress	Not Started	
			Develop and disseminate programs and materials covering pandemic fundamentals (e.g. signs and symptoms of influenza, modes of transmission), personal and family protection and response strategies (e.g. hand hygiene, coughing/sneezing etiquette, contingency plans).
			Anticipate employee fear and anxiety, rumors and misinformation and plan communications accordingly.
			Ensure that communications are culturally and linguistically appropriate.
			Disseminate information to employees about your pandemic preparedness and response plan.
			Provide information for the at-home care of ill employees and family members.
			Develop platforms (e.g. hotlines, dedicated websites) for communicating pandemic status and actions to employees, vendors, suppliers, and customers inside and outside the worksite in a consistent and timely way, including redundancies in the emergency contact system.
			Identify community sources for timely and accurate pandemic information (domestic and international) and resources for obtaining counter-measures (e.g. vaccines and antivirals).

6. Coordinate with external organizations and help your community

Comp-leted	In Progress	Not Started	
			Collaborate with insurers, health plans, and major local healthcare facilities to share your pandemic plans and understand their capabilities and plans.
			Collaborate with federal, state, and local public health agencies and/or emergency responders to participate in their planning processes, share your pandemic plans, and understand their capabilities and plans.
			Communicate with local and/or state public health agencies and/or emergency responders about the assets and/or services your business could contribute to the community.
			Share best practices with other businesses in your communities, chambers of commerce, and associations to improve community response efforts.

NYSDOH Model Influenza Voluntary Home Isolation and Quarantine Agreements

The New York State Department of Health (NYSDOH), Division of Legal Affairs, has developed the Model Voluntary Home Isolation Agreement and the Model Voluntary Home Quarantine Agreement for the local health departments (LHD) to use when asking a suspect or probable influenza patient or contact to submit to voluntary isolation or quarantine. The LHD should provide the appropriate agreement to patients with influenza symptoms or contacts as a means to instruct them on the necessary infection control precautions to be taken to prevent transmission to family members, friends, and other outside contacts. While these agreements are not intended to be legally binding contracts with the patient or contact, they clearly spell out what is expected of the patient or contact and his/her family by the LHD. This document may also be useful as evidence by the LHD in any subsequent court proceeding seeking involuntary isolation or quarantine, as it would show what was expected of the patient or contact and that the patient or contact was informed of these expectations, and that the LHD tried voluntary measures prior to seeking assistance from the court. **These models may be used as is or the LHD may choose to modify them as necessary to meet the needs of the particular situation, especially with regard to quarantine. We encourage the counties to add or remove provisions, or change the language of the agreements as necessary to make them more patient specific.**

There is a space at the end of each document for the suspected or probable influenza patient or contact and his or her caretaker or head of household to sign the document, acknowledging that s/he understands the information contained therein. There is also a place for the name and signature of the LHD representative who explained the provisions of the agreement to the suspected or probable influenza patient or contact and the caretaker/head of household. There should be three copies of the document signed by all three parties, one to be left with the patient, a copy for the caretaker/head of household, and the other to be placed in the file maintained by the LHD. In the event that there is no caretaker/head of household present, the LHD need only use two copies and note that there is no third party.

Should either person refuse to sign the document, the LHD representative should still sign each copy, give a copy to the patient, a copy to the caretaker/head of household, and keep the other copy in the LHD file with a note that the patient or caretaker/head of household refused to sign the document. Mere refusal to sign the document is not enough evidence of lack of cooperation on the part of the patient to justify seeking a commissioner's or court order. In addition to refusal to sign the agreement, justification for a commissioner's or court order would typically include evidence of the patient's failure to follow recommendations and demonstration of medical need for isolation or quarantine.

CDC guidelines suggest that quarantining persons who were exposed to influenza but who are not symptomatic may be a strategy to slow the spread of pandemic influenza as much as possible in order to provide additional time for the development, manufacture, distribution and administration of influenza vaccine and the manufacture and the distribution of influenza antiviral medications. To achieve this end, the LHDs need not implement strict quarantine in the traditional sense (i.e. asking someone to confine themselves to their house and not leave for any reason until the 7 day period is up). Depending on the situation, the LHDs could restrict the movement of the contact by implementing modified quarantine techniques (i.e. allowing the contact to leave the house to go to work but for no other reason). The level of restriction should be proportionate to the type of contact/exposure and the level of influenza activity. The following table is an example of the level of restriction required for certain influenza contacts based upon CDC recommendations. This table is merely an example and the methods that may be applied. Depending on the individual situation the LHDs could require more or less restrictions.

TYPE OF CONTACT/EXPOSURE	**QUARANTINE METHODS**
Contact has history of travel to affected area but no direct contact w/influenza case.	✓ May be required to monitor for fever and report if fever develops ✓ Advise proper hand hygiene ✓ Advise avoidance of unnecessary trips out of the home
Health care worker with contact with influenza case (probable or suspect)	✓ May by required to monitor for fever and report if fever develops ✓ Leave home to go to work only ✓ Advise not to use public transportation ✓ Advise against unnecessary contact with friends and relatives, no visitors. ✓ Advise against going to public gatherings (church, funerals, etc.)
Household member who is primary caregiver for a influenza patient in home isolation	✓ Prohibit leaving the home for any reason ✓ May by required to monitor for fever and report if fever develops ✓ Advise proper hand hygiene and use of protective equipment (masks & gloves) ✓ Prohibit contact with visitors

NYSDOH Model Influenza Voluntary Home Isolation Agreement

I have been informed that I have been diagnosed as a suspect or probable case of influenza, a communicable disease dangerous to the public health, and that unless precautions are taken, others may contract this infection from me. The local health department (LHD) and its commissioner, is required to protect the public from the danger of such communicable diseases by Public Health Law §§ 308 and 324, Public Health Law Art. 21, and 10 NYCRR Part 2. In order to prevent the spread of this virus the LHD has provided me with the following information, advised me of the need to comply with the following instructions and I hereby agree to the following:

- ❑ I shall remain in home isolation for a period of X days without fever, respiratory symptoms (such as cough, shortness of breath, or difficulty breathing) or sore throat.

- ❑ I shall be isolated at the following location which shall hereinafter be referred to as "home":

  Street address: _____

  City: _____ County: _____ Zip: _____

  Telephone: (_____) _____-_____

- ❑ I have been educated about the disease, the reasons for isolation in the home, and the length of time I can expect to be confined to the home.

- ❑ I shall limit all activities and interaction with all other persons living outside the home. I shall not go to school, a house of worship, work, out-of-home day care, stores or other public areas.

- ❑ I shall not leave the home for any reason unless first authorized to do so by the LHD.

- ❑ I understand that only those persons authorized by the LHD may enter my home during the period of my isolation. Those who enter the home without prior authorization from the LHD may be subject to isolation or quarantine themselves. I agree to notify friends and relatives that they shall not visit the home until further notice.

- ❑ I shall use a separate bed and, if possible, a separate bedroom.

- ❑ I shall wear a surgical mask when in the same room with non-infected persons. If I cannot wear a surgical mask, others in the same room will be asked to wear a surgical mask or respirator.

- If I am not masked I shall cover my nose and mouth with a disposable tissue when coughing or sneezing.

- Household waste, including surgical masks and disposable tissues soiled with respiratory secretions, blood, or other body fluids will be disposed of as normal household waste.

- I will wash my hands with soap and water after all contact with respiratory secretions from coughing or sneezing, blood, and all other body fluids (e.g. urine, feces, wound drainage, etc.). I will educate and encourage other members of my household to do the same.

- All members of my household will wear gloves on both hands when they have contact with my respiratory secretions (lung or nasal), blood, and all other body fluids (e.g. urine, feces, wound drainage, etc.). Alcohol-based hand hygiene products may be substituted for hand washing with soap and water after removing the gloves, **IF** the hands are not visibly soiled with respiratory secretions, blood, or other body fluids. Gloves shall not be reused and shall be discarded immediately after removal.

- My eating and drinking utensils will be washed with hot water and a household dishwashing detergent.

- Environmental surfaces (e.g. countertops, tables, sinks, etc.) in the kitchen, bathroom, and my bedroom will be cleaned and disinfected with a household disinfectant, such as household bleach or Lysol®, while wearing gloves, at least daily and when soiled with the respiratory secretions, blood, and other body fluids.

- My bed linens, towels, and personal clothing shall not be shared with other members of the household. Clothes and linens will be washed in hot soapy water.

- All members of my household or other close contacts who develop fever or respiratory symptoms will seek medical evaluation.

- I understand that to prevent transmission of influenza, I should advise members of the household who develop influenza symptoms that they shall call the physician's office, clinic, or hospital emergency department where they intend to seek care to alert healthcare workers there prior to seeking treatment.

- I will obtain or request the LHD to provide me and members of my household with surgical masks, gloves, and other items necessary to prevent the spread of influenza (i.e. alcohol-based hand wash).

- I will arrange or request the LHD to arrange for the delivery of necessary items to my home, including but not limited to, food, clothing, and supplies, during the period of isolation.

- ❑ I agree to adhere to any additional recommendations and instructions from the LHD that may be listed below:

_____
_____
_____
_____

I, or my legal guardian, may contact the following LHD representative to seek relief from, clarification of, or further explanation of the conditions contained in, any part of this agreement.

_____ (____)____-_____

(Name of LHD contact person) (Daytime telephone #)

The provisions of this agreement have been explained to me by the LHD representative and I fully understand that my failure to follow these guidelines or to voluntarily remain in isolation may result in my being placed in involuntary isolation, or committed to a facility where I may be isolated against my wishes.

_____ _____

(Print name of influenza case/contact) (Signature)

Date: _____

I, the caretaker/head of household, acknowledge that the LHD representative has explained the provisions of this agreement to me as well as the patient in isolation. I fully understand that my failure to follow these guidelines may result in my exposure to influenza and in my being placed in involuntary isolation, or committed to a facility where I may be isolated against my wishes.

_____ _____

(Print name of caretaker/head of household) (Signature)

Date: _____

_____ _____

(Print name of LHD representative) (Signature)

Date: _____

NYSDOH Model Influenza Voluntary Quarantine Agreement

I have been informed that I have been determined to be a contact of a suspect or probable case of influenza, a communicable disease dangerous to the public health, and that unless precautions are taken, I could potentially infect others. In order to prevent the spread of this virus, the local health department (LHD), pursuant to Public Health Law §§ 308 and 324, Public Health Law Art. 21, and 10 NYCRR Part 2, has provided me with the following information, and I hereby agree to the following:

- I shall remain in quarantine for 10 days after the date of my exposure and will immediately notify the LHD should I develop influenza symptoms, including but not limited to, a temperature greater than 100.4° F., and/or symptoms of a respiratory infection such as cough, shortness of breath or difficulty breathing, and/or sore throat.

  The LHD has determined that the date of my exposure was _____ and I shall be released from quarantine on or about _____, provided I do not develop influenza symptoms as noted above.

- I shall be quarantined at the following location, which shall be referred to as "home":

  Street address: _____

  City: _____ County: _____ Zip: _____

  Telephone: (_____) _____-_____

- I have been educated about the disease, the reasons for my quarantine, and the length of time I can expect to be restricted from certain activities.

- I shall limit all activities and interaction with all other persons living outside the home.

- I understand that during the quarantine period I may only leave the home to go to _____ (work/school/pharmacy, etc.). I shall not go to a house of worship, out-of-home day care, stores/malls, restaurants, movies, sporting events, or other public areas or events.

- I understand that only those persons authorized by the LHD may enter my home during the quarantine period. Those who enter the home without prior authorization from the LHD may be subject to isolation or quarantine themselves. I agree to notify friends and relatives that they shall not visit the home until further notice.

- I understand that whenever I leave the home I shall avoid close contact (within 3 feet) with others to the best of my ability. This includes, but is not limited to, avoiding the use of public transportation and confining myself to my office as much as possible when I'm at work (if applicable).

- I shall cover my nose and mouth with a disposable tissue when coughing or sneezing.

- Household waste, including surgical masks and disposable tissues soiled with respiratory secretions, blood, or other body fluids will be disposed of as normal household waste.

- I will wash my hands with soap and water after all contact with respiratory secretions from coughing or sneezing, blood, and all other body fluids (e.g. urine, feces, wound drainage, etc.). I will educate and encourage other members of my household to do the same.

- I shall not share food or beverages with members of the household and my eating and drinking utensils will be washed with hot water and a household dishwashing detergent.

- Environmental surfaces (e.g. countertops, tables, sinks, floors, etc.) in the household will be cleaned and disinfected with a household disinfectant, such as household bleach or Lysol®, while wearing gloves, at least daily an when soiled with the respiratory secretions, blood, and other body fluids.

- If requested by the county health department, I agree to monitor my temperature two times a day and report this information to the LHD as requested. The number I must call to report this information is (_____) ____-_____.

- If requested by the county health department, I will advise all members of my household or other close contacts who develop fever or respiratory symptoms to advise the LHD when such symptoms arise.

- I understand that to prevent transmission of influenza, if I or the members of the household develop influenza symptoms and I need to visit my physician's office, clinic, or hospital emergency department, I will alert healthcare workers prior to seeking treatment or immediately upon arrival.

- I understand that if I develop fever or respiratory symptoms I must adhere to the following additional provisions:

  - □ I shall use a separate bed and, if possible, a separate bedroom.

  - □ I shall wear a surgical mask when in the same room with non-infected persons. If I cannot wear a surgical mask, others in the same room will be asked to wear a surgical mask or respirator.

  - □ My bed linens, towels, and personal clothing shall not be shared with other members of the household. Clothes and linens will be washed in hot soapy water.

  - □ All members of my household will wear gloves on both hands when they have contact with my respiratory secretions (lung or nasal), blood, and all other body fluids (e.g. urine, feces, wound drainage, etc.). Alcohol-based hand hygiene products may be substituted for hand washing with soap and water after removing the gloves, **IF** the hands are not visibly soiled with respiratory secretions, blood, or other body fluids. Gloves shall not be reused and shall be discarded immediately after removal.

  - □ I will obtain or request the LHD to provide me and members of my household with surgical masks, gloves, and other items necessary to prevent the spread of influenza (i.e. alcohol-based hand wash).

- I understand that I will arrange or request the LHD to arrange for the delivery of necessary items to my home, including but not limited to, food, clothing, and supplies, during the quarantine period if I am not authorized to leave the quarantine location in order to obtain these items myself.

- ❑ I agree to adhere to any additional recommendations and instructions from the LHD that may be listed below:

_____
_____
_____
_____

I, or my legal guardian, may contact the following LHD representative to seek relief from, clarification of, or further explanation of the conditions contained in, any part of this agreement.

_____ (____)____-_____

(Name of LHD contact person) (Daytime telephone #)

The provisions of this agreement have been explained to me by the LHD representative and I fully understand that my failure to follow these guidelines or to voluntarily remain in quarantine will result in my being placed in involuntary quarantine, or committed to a facility where I may be quarantined against my wishes.

_____ _____

(Print name of influenza contact) (Signature)

_____

(Date)

_____ _____

(Print name of LHD representative) (Signature)

_____

(Date)

Section 9: Communications

I. Overview

Effective communication of key messages to all audiences will be critical to successful implementation of a public health response to pandemic flu. Confirmation of a pandemic flu strain will require comprehensive public information strategies to address the communication needs of various target audiences. This section will detail audiences, messages, strategies and communications channels that will be utilized to provide effective public information and risk communication in the event of an influenza pandemic. This section will also include information for responding to highly pathogenic avian influenza (HPAI) strains in New York with potential to spread to humans, even if they have not developed pandemic potential. Importantly, this section begins by delineating preparedness messages that will set the stage for an effective pandemic response.

Speed of communication is critical: The first message disseminated sets the stage for all future communications and speed of response is perceived as a reflection of the agency's preparedness. Factual content of the message is also crucial: The public will want information and a recommendation for action steps to reduce their risk. Public concerns should be treated as legitimate and recognized for their ability to influence effectiveness of a pandemic response. Arguably, effective public communication can help hasten containment of an outbreak and mitigate social and economic consequences. At a minimum, ineffective or delayed public communication will inevitably make the situation worse.

II. Objectives

During the Interpandemic and Pandemic Alert Periods:

New York State Department of Health:

- Develop and/or obtain informational materials to normalize such activities as hand hygiene and respiratory hygiene, staying home if you are sick, stocking up on necessary supplies.

- Develop and test pre-pandemic communication products to expedite delivery of public information should a pandemic strain emerge.

- Provide informational materials for use during "town meetings" to educate the public about pandemic influential and their crucial role.

State and Local Health Departments:

- Alert the public to their own critical role in pandemic preparedness and response; reinforce the message that in a severe pandemic, actions of individuals, businesses

and community organizations, as much as those of government, will greatly determine the outcome.

- Stress that preparing for and responding to a pandemic is not something that state or local health officials or local elected leaders can do alone—pandemic planning must be everybody's business.

- Employ social marketing strategies to normalize risk reduction behaviors such as hand hygiene and respiratory etiquette.

- Provide public information and education on appropriate use of masks.

- Identify or enhance alternate communication channels that can be used to help reach Special Needs Populations (SNPs), who otherwise may be unwilling to act upon official health directives in a pandemic, e.g., migrant workers, undocumented aliens, rural isolated individuals, homeless individuals. Such alternate channels may include faith community leaders, community based organizations and other trusted sources.

- Communicate with local health departments and the provider community through alternate channels such as the HIN, HPN, HERDS and professional/industry organizations.

- Provide clear information to distinguish between the difference in human risk of HPAI in New York and an influenza pandemic.

Local Health Departments:

- With local preparedness partners, conduct town meetings to educate communities about pandemic influenza and the public's crucial role.

During a Pandemic:

State and Local Health Departments:

- Utilize public information protocols to provide rapid, accurate information about the situation and the public health response to build trust and enhance agency credibility. Appendices 9-A and 9-B delineate NYSDOH's model for an emergency public information structure and public information resources.

- Provide factual information that will help the public assess the extent of the risk to themselves and their families (see Appendix 9-C for message maps that can be utilized by all key communications partners).

- Communicate recommended action steps to help the public reduce their risk of illness or death, including how to care for influenza patients at home.

- Provide public information and education on community containment strategies to reduce disease transmission.

- Communicate travel advisories.

- Continue to provide public information and education on appropriate use of masks.

- Continue to communicate with local health departments and the provider community through alternate channels such as the HIN, HPN, HERDS and professional/industry organizations.

- Provide a mechanism to update information on a regular basis.

- Use communications strategies that will address the issue of "worried well."

III. Public Information/Risk Communication Activities

A. Pre-Pandemic Communication (Interpandemic and Pandemic Alert Periods)

The word "pandemic" likely engenders an atmosphere of uncertainty among many members of the public. If public concern is high (even though the actual degree of risk may be low) an "information inoculation" can do a great deal to help alleviate fears. This must occur pre-event, to minimize distractions from "mental noise" and to help the public better understand their own, crucial role in pandemic preparedness and response. Risk communication research suggests that worried people respond better if they are provided with up-to-date factual information, coupled with action steps that permit them some measure of control over their own health and safety. Ideally, risk communication should begin when the target audience is attentive to the message, but not so overwhelmed by psychological or physical communication barriers that they cannot or will not receive, understand and/or act on the message. Therefore, it will be necessary to communicate information about human health risks associated with an influenza pandemic well before emergence of any pandemic strains that represent a threat of large scale human-to-human transmission. Particular emphasis should be placed on the distinction between a pandemic (a global influenza epidemic caused by a novel flu virus easily transmitted person-to-person) and the currently low risk of human illness associated with HPAI. New York State Health Department activities will include:

- An expanded social marketing campaign stressing hand washing and respiratory hygiene to be carried out during "normal" flu seasons.

- Development of communications products about an influenza pandemic (including, but not limited to, press releases, PSAs, fact sheets), and information resources (radio/TV messages and emergency instructions that can be localized,

web pages and links to additional credible information about HPAI and pandemic flu, etc.) that will be approved ahead of time. Print materials will be maintained in both web-based/CD-ROM and hard copy versions.

- Testing and evaluation of communication products, and, as necessary revision of same.

- Establishment of and/or maintain capacity for a public "call center" that can be rapidly activated to provide information in the event of HPAI or an influenza pandemic and ensuring that call center operators can provide risk communication along with public information.

- Maintaining capacity for rapid, interactive communication with key partners, including public health information officers across the nation via the National Public Health Information Coalition and continuing outreach to public information/risk communication staff representing health departments in Connecticut, New Jersey, Massachusetts, Vermont and Pennsylvania.

With HPAI and/or during the Interpandemic and Pandemic Alert Periods, NYSDOH will utilize defined public information protocols, and as necessary, alternate communication channels to address the information needs of various target audiences:

- Members of the media;
- General public;
- Elected leaders;
- Special populations;
- Local health departments (LHDs);
- Healthcare providers;
- NYSDOH employees;
- Other State agencies.

Specific communication tactics and channels to address these separate and distinct audiences are described below.

Media: During Interpandemic and Pandemic Alert Periods, the NYSDOH Public Affairs Group (PAG) will be the single point of contact within the Department for media inquiries about pandemic influenza, and for questions about human risks associated with HPAI. The New York State Department of Agriculture and Markets (NYSDAM) will be the point of contact for media inquiries about non-human animal HPAI. The New York State Department of Environmental Conservation (NYSDEC) will also be the point of contact for information about their wild bird triage system for HPAI testing.

Because of the anticipated volume of media inquiries, background information on pandemic flu and HPAI preparedness and response will be posted on the NYSDOH "test" website and moved to the public website upon the direction of PAG. As necessary,

current press releases, public service announcements and incident-specific updates will also be posted.

Consideration will be given to sponsoring a "Media Day" to help educate journalists about pandemic issues, pre-event.

General Public: Public information targeted to the general public will be disseminated during Interpandemic and Pandemic Alert Periods through a variety of communication channels:

- Via media reports generated by press releases, briefings and/or interviews;
- Via public service announcements (paid advertisements, as necessary, coupled with donated airtime);
- Via the NYSDOH website and links to other appropriate web-based information (e.g., websites at NYSDAM, SEMO, USDA, CDC, pandemicflu.gov);
- Through referrals to the NYSDOH public call center, as circumstances dictate.

The purpose of pre-event communications to the general public is to alert them of the crucial role they will play in pandemic preparedness and response, and to establish a candid and open dialogue about expected limitations on government resources during a severe pandemic.

Elected Leaders: Information targeted to elected leaders during Interpandemic and Pandemic Alert Periods will be disseminated through interactions coordinated by the NYSDOH Office of Governmental Affairs. It will be especially important, pre-event, to provide education on principles of risk communication and evidence-based best practices for communicating with the public during an outbreak, e.g.:

- Build trust;
- Announce early;
- Be transparent;
- Respect public concerns.

Special Populations: Interpandemic and Pandemic Alert Periods public information targeted to special populations (e.g., persons with disabilities, non-English speakers) will use informational materials and channels most appropriate to the needs of the target audience. To the extent possible, messages will be prepared and tested, pre-event. NYSDOH will consult with opinion leaders to explore cultural issues that could be relevant to pandemic communications and maintain and/or enhance communication channels targeted at hard-to-reach SNPs such as undocumented immigrants, homeless individuals, etc.

Local Health Departments: During the Interpandemic and Pandemic Alert Periods, NYSDOH will communicate regularly with local health departments to coordinate communications planning and enhance message consistency. This will be accomplished primarily via interactions with the New York State Association of County Health Officials (NYSACHO) and through use of the secure Health Commerce System. As part of pre-event planning, LHDs should make provisions to disseminate pandemic public information in a manner that promotes consistent messaging (e.g., making arrangements to handle a high volume of calls from the public and healthcare providers).

Healthcare Providers: During the Interpandemic and Pandemic Alert Periods, efforts will be made to promote use by health care providers of the secure Health Commerce System—Health Alert Network, Health Provider Network and Health Emergency Response Data System (HERDS)—which will be primary channels for provider information. Other provider information will be disseminated via

- Postings on the NYSDOH public website;
- Bulk e-mail;
- "Dear Administrator" letters;
- Distribution to professional associations including the Medical Society of the State of New York (MSSNY); New York State Nurses' Association (NYSNA); New York State Veterinary Medical Society (NYVMS); Home Care Association of New York State; and the Greater New York Hospital Association (GNYHA), among others.

NYSDOH Employees: During the interpandemic and pandemic alert periods, Department staff will be notified of any significant information via Lotus NEWS items. As appropriate, these will contain links to additional information resources.

B. Pandemic Period Communications:

To communicate factual information rapidly to further enhance credibility and trust in a Pandemic Period, NYSDOH will:

- Utilize risk communication principles;
- Utilize web-based communications;
- Maximize media relations;
- Activate a call center for the general public;
- Activate a provider helpline;

- Designate spokespersons and subject matter experts;
- Expedite the clearance process for release of information;
- Participate in a Joint Information Center (JIC) as appropriate.

Specific strategies for accomplishing the last three activities are described below.

Spokespersons and Subject Matter Experts

The State Health Commissioner, or her designee, will be the primary spokesperson regarding emergency health issues related to pandemic flu and for issues related to the human health risk of HPAI.

Subject matter experts representing the Center for Community Health (Dr. Guthrie S. Birkhead), Division of Epidemiology (Dr. Perry Smith), Bureau of Communicable Disease Control (Dr. Barbara Wallace); Immunization Program (David Lynch, Dr. Debra Blog), Zoonoses Program (Dr. Millicent Eidson, Dr. Bryan Cherry), Office of Science and Public Health (Dr. Dale Morse), Office of Health Systems Management (David Wollner), and Wadsworth Laboratory (Dr. Lawrence Sturman) will support the primary spokesperson(s) and may serve as secondary spokespersons if their specific expertise is required.

Information Release and Joint Information Center

During a Pandemic Period, to update public information and provide recommended action steps in a timely manner, NYSDOH will facilitate expedited review and clearance of communication products, share public messages with key communication partners and participate in a Joint Information Center (JIC). The purpose of a JIC will be to facilitate a one-voice response; serve as the clearinghouse for accurate, timely information; and enhance the dissemination of health information essential to an effective health emergency response.

- All information materials for public dissemination will be cleared through the appropriate Bureau, Division and Center. Once Center clearance is obtained, the material will be forwarded to the Director of PAG for review and then to the Office of the Commissioner for signoff.
- The decision to release public information will be coordinated with the Governor's Office of Communications (Press Office), as will a decision to establish a JIC.
- A JIC will be coordinated by SEMO with the participation of NYSDOH, NYSDAM, NYSDEC, and other state and local agencies, as appropriate. Establishment of a JIC will be critical if New York State has HPAI affecting both human and animal species.

- A JIC will be located at the Emergency Coordination Center (ECC) at SEMO. An alternative, "virtual" JIC or "near site" JIC location will be considered, according to the specifics of the emergency and the needs of the media.

Target audiences

Although target audiences will remain the same during a Pandemic Period, enhanced tactics and channels will be utilized to address the increased public information and risk communication needs of:

- Members of the media;
- General public;
- Elected leaders;
- Special populations;
- Local health departments;
- Healthcare providers;
- NYSDOH employees;
- Other State agencies.

Media: The media will be the primary information resource for all target audiences during a Pandemic Period. It must be recognized that the media will play an essential role in creating an informed public. However, inaccurate or exaggerated press reports can fuel public concern far in excess of an actual health risk. Thus, there must be a constant source of timely "official" public information to reduce rumors that otherwise will quickly fill an information vacuum. To ensure message accuracy and coordination, during a pandemic period, NYSDOH PAG will continue as the single point of contact within the Department for media inquiries.

PAG press office staff will be available to assist with press calls, and risk communication staff, with Bureau of Health Media and Marketing staff as backup, will be available to take messages for callbacks, and/or direct reporters to alternate sources of information (e.g., the Department's website, press releases, fact sheets, etc).

Because of the anticipated volume of media inquiries, regular updates on pandemic influenza incidence and the New York State response will be posted on the NYSDOH public website upon the direction of PAG. Press releases, fact sheets, public service announcements and incident-specific updates, such as travel advisories, will also be posted.

PAG will coordinate media briefings and provide access to spokespersons/Subject Matter Experts in consultation with the Governor's Office of Communications (Press Office). PAG and/or risk communication staff will participate in a JIC at the direction of the Press Office. If social distancing is necessary, telebriefings may be substituted for media availabilities/press conferences. Should there be a need for mass prophylaxis at a State

Point of Dispensing; an opportunity will be provided for media members to cover the event via pooled coverage.

Media monitoring will occur continually, and incorrect or outdated information will be corrected without delay.

General Public: Public information targeted to the general public will be disseminated through a variety of communication channels:

- Via media reports generated by press releases, briefings and/or interviews;
- Via public service announcements (paid advertisements, as necessary, coupled with donated airtime);
- Via the NYSDOH website and links to other appropriate web-based information (e.g. CDC website, SEMO website); and
- Through referrals to the NYSDOH public call center.

Elected Leaders: Information targeted to elected leaders will be disseminated through regular briefings and interactions coordinated by the NYSDOH Office of Governmental Affairs.

Special Populations: Public information targeted to special populations during a Pandemic period will be disseminated in various languages other than English, such as Spanish, Russian, Chinese and Haitian-Creole; low-literacy versions; and unique versions for persons with disabilities. Local news and advertising media (newspapers, television and radio) will be used to disseminate specific emergency response information. Communication strategies will also target community opinion leaders and trusted sources to employ as alternate information channels for hard-to-reach special populations.

LHD Staff: During a pandemic period, NYSDOH will communicate regularly with LHDs. This will be accomplished primarily via continued interactions with NYSACHO and through use of the secure Health Commerce System. Designated LHD staff will access information through the Health Information Network (HIN), Communications directory, telephone briefings, bulk fax and/or e-mail.

Healthcare Providers: Specific diagnostic and treatment information will be provided during a Pandemic period to medical and other health professionals. Communication channels will include bulk fax and e-mail, the HPN, HERDS, professional associations, direct mail and the customary mass media channels. Special efforts should be directed at primary care providers and urgent care "Walk In" practices, which will be on the front lines of patient interactions. During a pandemic period, an in-house "provider helpline" will be staffed by NYSDOH experts to assist public health officials or medical personnel who need technical information about pandemic influenza. This call center will serve as a

backup to LHDs which will be the first line of contact for healthcare providers in their jurisdictions.

NYSDOH Employees: Particularly during a pandemic period, individuals who work for the Department will be regarded by their neighbors, friends and family as "informed sources" of information. Providing them with timely, accurate and essential information will create a channel for effective inter-personal communications. To foster information/education for Department employees, PAG and risk communication staff will partner with human resources to enhance internal communications, e.g., by distributing print materials with paychecks, consulting with Employee Assistance Program staff on psychosocial issues that may affect individuals' willingness to follow risk reduction advice, using the Emergency Contact Database, and/or other strategies as dictated by ongoing circumstances.

Other State Agencies: NYSDOH will retain information on state agency contacts for pandemic flu preparedness and will provide timely information to these individuals via the Communication Directory alert and/or bulk messaging tools.

IV. Conclusion

The public is entitled to early, accurate information that affects their health and that of their families. All pandemic communication strategies and activities will support the goal of enhancing public trust and confidence by announcing early, including establishing a candid and open dialogue with the public pre-event; acknowledging uncertainty; and withholding false reassurance. During a pandemic, emphasis will be given to providing timely, consistent and updated communication to promote risk reduction behaviors and accelerate outbreak control.

V. Activities by Pandemic Period

The following section describes the activities to be undertaken by pandemic period for each objective described above.

Interpandemic and Pandemic Alert Periods

State Health Department:

- Establish and maintain partnerships with public information staff from state, regional and local government agencies; hospitals and hospital industry organizations and human needs organizations.
- Facilitate risk communication training opportunities for key public information partners.
- Develop and test public information messages.
- Promote awareness of activities that will allow people to "shelter in place," if necessary, e.g.:

    - Have a three-week supply of food and water and non-perishable foods in your home;
    - Have a well stocked first aid kit, including medications to reduce fever and pain, and a fever thermometer;
    - Have a wind up or battery operated radio or TV.
- Post information about novel influenza strain on the Department's public website. If avian influenza strain is identified in birds in NYS, consider activities listed under pandemic period below to alleviate public alarm and appropriately respond to human health concerns about potential contact with infected animals.
- Provide information updates to LHD staff and health care providers via HIN/HAN/HPN/HERDS and to NYSDOH employees via Lotus News or similar internal communication channel.

State and Local Health Departments:

- Maintain contact information for key public information partners within the Department's Communications Directory.
- Utilize social marketing to normalize risk reduction behaviors.
- Alert the public about their own critical role.
- Identify SNPs who are hard to reach and alternate channels of communication in addition to mass media.
- Utilize designated spokespersons and/or subject matter experts to conduct media interviews.
- Provide summaries of updated information to key public information partners.
- Post information updates on the public website.
- Establish and/or maintain capacity for a public call center.

Pandemic Period

State Health Department:

- Participate in risk communication conference calls, monitor HHS/CDC telebriefings, and share information with other states via the National Public Health Information Coalition.
- Notify the general public of a specific health threat to New York State at the direction of the Governor or Commissioner of Health.
- Make public announcements regarding an influenza pandemic via the Governor, State Health Commissioner or their designated spokespersons.
- Disseminate protective action messages via Emergency Alert System (EAS) channels that will provide basic information about the emergency and refer viewers/listeners to additional sources of information.
- Prepare public notices and ensure they are reviewed by the appropriate executive and program staff, and, as necessary, the Governor's press office.
- Notify the news media of health issues related to pandemic influenza. PAG will disseminate information via bulk faxing to news agencies, and post news releases on the DOH web site.

- In the event of a need for mass prophylaxis, utilize EAS channels, the NYSDOH website and other media channels to announce the availability/locations of vaccination sites or other protective actions being recommended.

State and Local Health Departments:

- Coordinate risk communication with key partners to enhance message consistency.
- Participate in a JIC, if one is established, and/or schedule regular media briefings and/or telebriefings.
- Activate public call center and provider helpline.
- Provide call center operators with specific messaging for "worried well" including information about how to care for influenza patients at home.
- Promote pneumococcal vaccination.
- Reinforce respiratory etiquette and hand hygiene, mask usage and stay at home messages.
- Reinforce community containment messages.
- Communicate travel alerts.

Health Emergency Public Information Response Roles

Public Information Roles and Responsibilities:

Public Affairs Group Direction: Provide overall leadership for all NYSDOH public information activities related to the emergency including media relations health education campaigns, coordination with the Governor's press office and other state agency PIOs and web based public information.

Media Relations: Respond to inquiries from reporters.

Health Media and Marketing Direction: Oversee creation of social marketing activities to support NYSDOH emergency response.

Communication Production Services: Direct the design and print production of materials to support NYSDOH response.

Public Website: Create and maintain web-based informational materials to support DOH response and inform public regarding ways to reduce risk.

Staff:

Public Affairs Group Direction, Director of Public Affairs (Robert Kenny), Deputy Director (Valerie Weaver)

Media Relations: Public Information Officers (4); administrative assistants (3), community relations specialists (2).
Equipment: Laptop computers (2); cell phones (2); Blackberry wireless device (2)

Health Media and Marketing Direction: Director Bureau of Health Media and Marketing; Health Education Media Specialists (10.5); Purchasing agent (1); administrative assistants (2)
Equipment: Multi-line phone (2); laptop computer (1)

Communication Production Services: Director Bureau of CPS; graphic designers (5); Purchasing agent (.5); print shop staff (6)
Equipment: Laptop computer (1); high-speed digital Xerox machines (2), high-speed digital color copier (1), three one-color, one-side presses, one one-color press perfector (prints two sides at once); one two-color press; one high-speed collator/booklet maker; one high-speed folder.

Public Website: Director (PWSA administration/direction/editor-in-chief); DOH Webmaster (technical policy/direction); web programmers (4)
Equipment: Cell phone (1); laptop computers (3); VPN access from a remote location (4).

Public Health Risk Communication Roles and Responsibilities:

Director of Public Health Risk Communication, OSPH (Kristine Smith)
Provide guidance on principles of crisis emergency risk communication (CERC) to department spokespersons and key partners; advise on messaging. Direct activities of Public Health Risk Communication staff related to pandemic influenza preparedness and response.

New York State Department of Health Emergency Public Information System

Commissioner of Health → Governor's Office of Communications (Press Office)
Executive Deputy Commissioner

NYSDOH Communication Leadership Team:
Director of Public Affairs
Director, Office of Science and Public Health
Director, Center for Community Health
Director, Center for Environmental Health
Director, Office of Health Systems Management
Director, Public Health Risk Communication
Director, Health Preparedness Program
Director, Hospital Preparedness Program

Media Team:
Director PAG
Deputy Director, PAG
PAG press office staff
Director of Public Health Risk Communication

Information Management Team:
Director, Information Systems and Health Statistics Group
Former focus Area E Coordinator
Informatics staff

Health Education Team:
Director of Public Health Risk Communication
Deputy Director of Public Affairs
Director, Bureau of Health Media and Marketing
Director, Bureau of Communications Productions Services
Public health risk communication staff
BHMM staff (backup)

Healthcare Provider Communications Team:
Director of Preparedness Education
Director, Public Health Risk Communication
Director of Hospital Preparedness
Hospital Preparedness program staff
Director, Bureau of Communications Productions Services
Public health risk communication staff
Call center coordinator(s)

Web Team:
Public website director
Webmaster
Public website programmers

Public Response Line Team:
Director, BCDC
Assistant Director, BCDC
Public health risk communication staff (writers)

New York State Department of Health Draft Message Maps

MESSAGE MAP: AVIAN FLU *ISSUE: PANDEMIC FLU* *STAKEHOLDER:* General Public *QUESTION OR CONCERN:* What is Avian Flu?		
Key Message 1	**Key Message 2**	**Key Message 3**
Avian influenza (bird flu) is normally found in birds	**It's possible for avian influenza to spread to humans, but not easily**	**An outbreak is possible, if the virus changes to a form that is spread easily from person to person**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
A severe form of bird flu is widespread in Asia	Bird flu rarely affects humans, because it requires close contact with infected birds	Disease in birds can be spread from country to country through bird migration
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
Outbreaks of a less severe strain of avian influenza in birds have occurred previously in the US and have been contained	The avian influenza virus may change so it could spread more easily and cause a pandemic	Plans are being developed to produce vaccine quickly if a pandemic begins
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
US is strengthening surveillance to identify disease	Avian influenza can cause serious disease and death in humans	Tamiflu will be stockpiled to help treat avian influenza in humans

MESSAGE MAP: AVIAN FLU

ISSUE: PANDEMIC FLU
STAKEHOLDER:
General Public
QUESTION OR CONCERN: Avian Flu Confirmed in NY Birds

Key Message 1	**Key Message 2**	**Key Message 3**
H5N1 avian influenza (bird flu) has been confirmed in (event specific) birds in NYS	**This does NOT mean that people will get sick**	**There are things to do to protect yourself**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
The discovery was made (event specific, when/where)	Bird flu rarely affects humans, because it requires close contact with infected birds	Don't handle any wild birds or poultry with your bare hands
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
Officials are moving fast to limit the spread of avian flu in birds	Officials are watching closely for any increase in flu-like illnesses, just as a precaution	Don't attract wild birds with bird feeders or bird baths
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
Outbreaks of a less severe strain of avian influenza in birds have occurred previously in the US and have been contained	There have been no avian influenza cases in people in NYS	ALWAYS cook poultry thoroughly and wash your hands and any surfaces that have come into contact with raw poultry.

PRE-EVENT MESSAGE MAP: PANDEMIC FLU		
ISSUE: PANDEMIC FLU *STAKEHOLDER:* General Public *QUESTION OR CONCERN:* What is pandemic flu?		
Key Message 1	**Key Message 2**	**Key Message 3**
Pandemic influenza is a worldwide flu outbreak	**If the current Asian bird flu changes so it spreads easily to humans, a pandemic could occur**	**We are prepared to respond with a flu pandemic plan in place**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
Avian flu and pandemic influenza are not the same thing.	There were 3 pandemics during the 20th century and scientists think we're overdue for the next	We have stepped up surveillance (disease tracking capabilities) through statewide electronic information sharing with public health and hospital partners
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
An influenza pandemic could be caused by a new flu virus **other** than avian flu	It is likely that vaccine against a pandemic influenza strain will not be available initially or will be in limited supply	We have trained staff and partners to respond through local mass dispensing drills based on county plans
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
Pandemic influenza is expected to have a high death rate	Any available vaccine will go FIRST to _____(Plan specific) because _____(Plan specific)	We are coordinating with federal agencies and local partners to receive and distribute vaccine broadly as soon as it becomes available

EVENT MESSAGE MAP: PANDEMIC FLU ARRIVES

ISSUE: PANDEMIC FLU
STAKEHOLDER:
General Public
QUESTION OR CONCERN:
What should the public know about an outbreak of pandemic flu?

Key Message 1	**Key Message 2**	**Key Message 3**
A worldwide outbreak of influenza virus has now reached New York State	**Vaccine supply is limited, and additional vaccine may not be available for 3-6 months**	**We want to reduce contact and slow the spread of disease**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
This flu is highly contagious and is spread by coughing and sneezing	Since vaccine supply is limited, only _____(Event specific) will receive the flu shot	We might have to close schools for a while and limit public gatherings
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
Past influenza pandemics have caused many serious illnesses and deaths so we must work together to try to stop the spread of this disease	It's vital that these people get vaccinated first because_____ (Event specific)	To protect people who have not gotten sick, NYSDOH is quarantining those who have been exposed to ill individuals for as long as the incubation period of the disease
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
Cases have been reported in ___ counties	To reduce risk, do the following _____(Event specific, e.g. avoid close contact with the sick, wash hands often, cover your cough, bolster immune system, wear a mask in public, limit time spent in public, especially if you have flu symptoms)	Sick individuals must remain in isolation until ___ days after the end of fever

PROTECTIVE MESSAGE MAP: PANDEMIC FLU

ISSUE: PANDEMIC FLU
STAKEHOLDER:
General Public
QUESTION OR CONCERN:
Now that there's an outbreak, what can people do to protect themselves?

Key Message 1	**Key Message 2**	**Key Message 3**
Avoid close contact between sick and well people	**Stay home from work, school or errands when you are sick**	**Wash your hands with soap often and use a hand sanitizer if soap and water aren't available**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
Limit attendance at public events	You can spread flu to co-workers, resulting in severe staff shortages	Flu can be spread by direct contact
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
Cover mouth and nose with your sleeve or tissue every time you sneeze or cough	If you need food or medicines, ask others who are healthy to bring them to you rather than going to the store yourself	Soap or hand sanitizer can kill the flu virus
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
Put used tissue in the trash	Friends or helpers can leave supplies outside your door so that you do not expose them to the flu	Hand washing is helpful to reduce the spread of flu

SYMPTOM MESSAGE MAP: PANDEMIC FLU		
ISSUE: PANDEMIC FLU *STAKEHOLDER:* General Public *QUESTION OR CONCERN:* What are symptoms of pandemic flu?		
Key Message 1	**Key Message 2**	**Key Message 3**
Typical signs and symptoms of flu are well known	**Signs and symptoms of a pandemic influenza strain may differ**	**If you believe you have the flu, contact a physician or call the NYSDOH call center for information about symptoms**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
Symptoms include fever, headache, body aches and cough	Event specific	The number is _____ and the hours of operation are ___
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
Signs and symptoms appear approximately 2-5 days after exposure	Event specific	Additional information is available on NYSDOH website: www.nyhealth.gov and on www.pandemicflu.gov
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
Illness may last 1-2 weeks	Event specific	If you think you have the flu, telephone your doctor for advice and ask for a mask as soon as you arrive at his/her office

TREATMENT MESSAGE MAP: PANDEMIC FLU		
ISSUE: PANDEMIC FLU *STAKEHOLDER:* General Public *QUESTION OR CONCERN:* What is treatment of pandemic flu?		
Key Message 1	**Key Message 2**	**Key Message 3**
Since this is a new strain of flu, no vaccine is available right now	**Tamiflu may be available, but will probably be reserved for treatment of the sick**	**Those who are ill should remain at home**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
A vaccine is being developed	It is in limited supply	Drink plenty of fluids and get plenty of rest
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
It will be distributed as soon as it is made available	It may or may not be effective	Discard used tissues properly and wash your hands frequently after coughing or sneezing
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
Watch the media for updates	When effective, it can lessen symptoms if taken within 24 hours of onset of symptoms	Limit exposure to family members and friends

QUARANTINE MESSAGE MAP: PANDEMIC FLU		
ISSUE: PANDEMIC FLU *STAKEHOLDER:* General Public *QUESTION OR CONCERN:* Why have you **imposed/lifted** a quarantine during the pandemic?		
Key Message 1 (Impose)	**Key Message 2 (Impose)**	**Key Message 3 (Lift)**
Because flu is so contagious, aggressive action is necessary	**Initially, quarantine may possibly slow down spread of flu**	**Flu is now too widespread for quarantine to make a difference**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
Flu can be spread by air (coughing or sneezing) or direct contact	Quarantine limits personal contact	Quarantine means keeping people who are not sick, but who have been exposed to the flu, away from anybody else
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
An infected person can spread flu before developing symptoms	Slowing the spread of flu may allow time to develop and dispense a vaccine	Efforts now are better directed in caring for the sick, rather than making sure exposed people remain in quarantine
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
People who have been exposed may pose a risk of illness to others	Slowing the spread of flu may allow additional time to prepare for the outbreak	Flu is so widespread that people will be exposed to flu despite quarantine efforts

BUSINESS CONTINUITY PREPAREDNESS MESSAGE MAP: PANDEMIC FLU

ISSUE: PANDEMIC FLU
STAKEHOLDER:
General Public
QUESTION OR CONCERN:
What can the public or a business do to prepare for pandemic flu?

Key Message 1	**Key Message 2**	**Key Message 3**
Determine the impact a pandemic would have on your business	**Develop an emergency plan to operate during a pandemic**	**Network with external partners to ensure continued services**
Supporting Fact 1-1	**Supporting Fact 2-1**	**Supporting Fact 3-1**
Determine the impact for a large number of employees getting sick	Train personnel, identify critical positions and test plan	Set up brainstorm sessions to meet and begin discussion
Supporting Fact 1-2	**Supporting Fact 2-2**	**Supporting Fact 3-2**
Determine the impact from a customer perspective	Cross-train for critical positions	Develop strategies
Supporting Fact 1-3	**Supporting Fact 2-3**	**Supporting Fact 3-3**
Determine the impact on your inventory of products or services	Prioritize personnel for possible vaccination (if available)	Practice these strategies

Section 10: Training and Education

I. Overview

II. Objectives

III. Activities by Pandemic Period

Appendix:

10-A: Training Grid

I. Overview

This section outlines the Training and Education activities of the NYSDOH Pandemic Influenza Plan to ensure that healthcare providers, public health staff, and healthcare facilities are appropriately trained on the issues relevant to a pandemic influenza outbreak, and have access to appropriate resources.

An effective response to a pandemic influenza outbreak requires rapid, appropriate public health and healthcare provider activities including: 1) surveillance, investigation, protective health measures; 2) vaccine and antiviral drug use; 3) healthcare and emergency response; and communications and public outreach. Critical content areas for training both the public health and healthcare communities will also include: 1) information about a circulating pandemic strain; 2) disease burden; 3) disease complications and mortality rates; and 4) disease control measures, including vaccines (and absence of), antiviral medications, and other treatment options. Should a pandemic influenza outbreak occur, additional methods for educating providers will need to be expanded, as the demand for information is anticipated to be significant. Education will also need to be provided about novel influenza viruses with pandemic potential that have not yet mutated to cause an influenza pandemic, but have some risk for human infections and limited human to human transmission, such as the highly pathogenic avian influenza (HPAI) Asian H5N1 strain.

II. Objectives

- Ensure that the public health and healthcare communities are trained in appropriate strategies to recognize, treat, and report a pandemic influenza outbreak.
- Ensure that the public health and healthcare communities are trained to implement control measures in order to contain an outbreak.
- Ensure that all available learning methodologies are utilized to disseminate training and resource materials as widely as possible, and in as timely a way as possible.
- Conduct periodic exercises and drills to evaluate the readiness of the pandemic influenza plan, to ensure that staff involved in planning, response and/or recovery have both the appropriate skill sets, and are able to work in a coordinated manner with other parts of the Department, and other State, local and federal agencies.

III. Activities by Pandemic Period

Interpandemic Period

State Health Department:

- Assess information needs of providers, including surveillance and reporting, diagnostics, transmission, exposure management, PPE, and isolation and quarantine.

- Develop a portfolio of educational resources for healthcare and human services providers on:
  - pandemic influenza preparedness and response
  - clinical and laboratory diagnostics
  - treatment options, including facilities, vaccine and antiviral drugs in short supply
  - infection control
  - isolation and quarantine
  - stigmatization management
  - travel control authority
  - legal issues
  - psychosocial issues for responders across disciplines
  - agencies' roles and responsibilities
- Review CDC materials, and adapt and revise as needed.
- Develop formal curricula and materials in multiple formats for professional audiences to complement materials produced by CDC and other organizations (see Appendix 10-A: Training Grid).
- Participate in tabletop exercises and other collaborative preparations to assess preparedness, and to identify and resolve potential problems. Plan regional tabletops to identify gaps in planning, and provide a consistent mechanism to address those gaps.
- Educate partners regarding NYSDOH Pandemic Influenza Plan (OHS, SEMO, Training partners, law enforcement, NYSACHO). Contact key community partners and implement frequent updates.

Local Health Departments:

- Participate in tabletop exercises and other collaborative preparations to assess preparedness, and to identify and resolve potential problems. Participate in regional tabletops to identify gaps in planning, and provide a consistent mechanism to address those gaps.

Healthcare Partners:

- Participate in tabletop exercises and other collaborative preparations to assess preparedness, and to identify and resolve potential problems. Participate in regional tabletops to identify gaps in planning, and provide a consistent mechanism to address those gaps.

Pandemic Alert Period

State Health Department:

- Identify partner organizations to assist in dissemination of education materials, and assure current contacts, willingness to collaborate and coordinate, and ability to distribute materials in various formats
  - Medical Society of the State of New York
  - New York State Nurses Association
  - New York State Dental Association

  - Community Health Centers Association of New York State
  - Healthcare Association of New York State
  - New York State Association of Homes and Services for the Aging
  - New York State Association of County Health Officials
  - Empire Associations of Adult Homes and Assisted Living Facilities
  - Home Care Association of New York State
  - Hospice and Palliative Care Association of New York State
  - New York State Association of Health Care Providers
  - New York Coalition for Quality Assisted Living
  - Tribal nations
- Coordinate with partner organizations in preparation for, and appropriate provider and public health responses to, a case of novel virus infection or outbreak of pandemic influenza, including the roles and responsibilities of the different sectors involved, and how the public health system will respond.
- Prepare and begin distribution of materials to increase knowledge of public health and healthcare communities, including:
  - definition of pandemic influenza
  - surveillance and reporting criteria of possible cases of novel virus infection
  - differences between an influenza pandemic and an avian influenza strain with pandemic potential
  - infection control measures
  - patient management strategies
  - community containment measures
  - travelers' advisories and alerts
  - rationale for prioritization of vaccine and antiviral medications
  - policies on how long to test
- Identify and utilize multiple avenues (HIN, HPN, teleconferences, mass e-mail, mass mailings, webinars, videoconferences, etc.) to distribute training materials to public health and healthcare providers.
- Identify subject matter experts for formal education programs.
- Identify training methodologies to be utilized, and confirm availability and technical quality.
- Initiate formal education sessions with public health and healthcare communities (see attached appendix for target audiences, content areas) utilizing all available methodologies (audio and video conferences, webcasts, HAN alerts, satellite downlinks, etc.).
- Disseminate information to partners, public health and healthcare communities on an ongoing basis.

Local Health Departments:

- Identify partner organizations to assist in dissemination of education materials, and assure current contacts, willingness to collaborate and coordinate, and ability to distribute materials in various formats
  - Medical Society of the State of New York
  - New York State Nurses Association

  - New York State Dental Association
  - Community Health Centers Association of New York State
  - Healthcare Association of New York State
  - New York State Association of Homes and Services for the Agin
  - Empire Associations of Adult Homes and Assisted Living Facilities
  - Home Care Association of New York State
  - Hospice and Palliative Care Association of New York State
  - New York State Association of Health Care Providers
  - New York Coalition for Quality Assisted Living
  - New York State Association of County Health Officials
  - Tribal nations
- Coordinate with partner organizations in preparation for, and appropriate provider and public health responses to, a case of novel virus infection or outbreak of pandemic influenza, including the roles and responsibilities of the different sectors involved, and how the public health system will respond.
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  - definition of pandemic influenza
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  - differences between an influenza pandemic and an avian influenza strain with pandemic potential
  - infection control measures
  - patient management strategies
  - community containment measures
  - travelers' advisories and alerts
  - rationale for prioritization of vaccine and antiviral medications
  - policies on how long to test
- Identify and utilize multiple avenues (HIN, HPN, teleconferences, mass e-mail, mass mailings, webinars, videoconferences, etc.) to distribute training materials to public health and healthcare providers.
- Initiate formal education sessions with public health and healthcare communities (see Appendix 10-A for target audiences, content areas) utilizing all available methodologies (audio and video conferences, webcasts, HAN alerts, satellite downlinks, etc.).
- Disseminate information to partners, public health and healthcare communities on an ongoing basis.

Healthcare Partners:

- Identify partner organizations to assist in dissemination of education materials, and assure current contacts, willingness to collaborate and coordinate, and ability to distribute materials in various formats
  - Medical Society of the State of New York
  - New York State Nurses Association
  - New York State Dental Association
  - Community Health Centers Association of New York State

  - Healthcare Association of New York State
  - New York State Association of Homes and Services for the Aging
  - New York State Association of County Health Officials
  - Empire Associations of Adult Homes and Assisted Living Facilities
  - Home Care Association of New York State
  - Hospice and Palliative Care Association of New York State
  - New York State Association of Health Care Providers
  - New York Coalition for Quality Assisted Living
  - Tribal nations
- Coordinate with partner organizations in preparation for, and appropriate provider and public health responses to, a case of novel virus infection or outbreak of pandemic influenza, including the roles and responsibilities of the different sectors involved, and how the public health system will respond.
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  - definition of pandemic influenza
  - surveillance and reporting criteria of possible cases of novel virus infection
  - differences between an influenza pandemic and an avian influenza strain with pandemic potential
  - infection control measures
  - patient management strategies
  - community containment measures
  - travelers' advisories and alerts
  - rationale for prioritization of vaccine and antiviral medications
  - policies on how long to test
- Identify and utilize multiple avenues (HIN, HPN, teleconferences, mass e-mail, mass mailings, webinars, videoconferences, etc.) to distribute training materials to public health and healthcare providers.
- Initiate formal education sessions with public health and healthcare communities (see attached appendix for target audiences, content areas) utilizing all available methodologies (audio and video conferences, webcasts, HAN alerts, satellite downlinks, etc.).
- Disseminate information to partners, public health and healthcare communities on an ongoing basis.

Pandemic Period

State Health Department:

- Review and modify materials, as appropriate.
- Continue formal education and training sessions.
- Communicate lessons learned to healthcare providers and public health agencies on effectiveness of clinical and public health responses.
- Communicate with public health and healthcare providers about the next likely pandemic wave.

Local Health Departments:

- Continue formal education and training sessions.

Healthcare Partners:

- Continue formal education and training sessions.

Appendix 10-A

Public Health Partners

	NYSDOH STAFF	PRIVATE PROVIDERS	LHDs	REGIONAL EPI STAFF	EMS	BEHAVIORAL HEALTH PROVIDERS	LAW ENFORCEMENT	VOLUNTEERS	VET	FUNERAL DIRECTORS, MEDICAL EXAMINERS, CORONERS
COMMAND AND CONTROL										
Commerce system	X		X		X	X		X		X
Risk communication for partners	X	X	X			X		X	X	X
ICS training	X		X	X	X	X	X	X		
Legal issues	X		X			X		X		
Preparedness and response	X	X	X	X	X	X	X	X	X	X
Agencies' roles and responsibilities	X		X		X					
SURVEILLANCE/LAB										
ECLRS	X		X							
Reporting criteria (Epi and Clinical)	X	X	X	X	X	X		X	X	X
Case investigation/contact tracing/implementation of control measures	X		X	X	X			X		X
Surge Capacity	X		X	X	X			X		X
Antiviral regimens	X	X	X		X	X		X	X	
Infection Control	X	X	X	X	X	X	X	X	X	X
Isolation and Quarantine	X	X	X	X	X	X	X	X	X	X
Specimen collection and transport	X	X	X	X					X	

Appendix 10-A

	NYSDOH STAFF	PRIVATE PROVIDERS	LHDs	REGIONAL EPI STAFF	EMS	BEHAVIORAL HEALTH PROVIDERS	LAW ENFORCEMENT	VOLUNTEERS	VET	FUNERAL DIRECTORS, MEDICAL EXAMINERS, CORONERS
Packaging and shipping	X	X	X	X					X	
Diagnostics	X	X	X	X	X				X	
Length of time to test		X		X					X	
HEALTHCARE PLANNING										
ICS training	X		X	X	X	X	X	X		X
Modifications in Standards of Care	X	X	X	X	X	X			X	
Prevention and control of infection	X	X	X	X	X	X	X	X	X	X
Annual vaccination campaigns	X	X	X	X	X	X	X	X	X	X
Antiviral regimens	X	X	X		X	X		X	X	X
Cohorting of patients	X	X	X		X	X			X	
Surge Capacity	X		X	X	X			X		X
Reporting	X	X	X	X	X	X		X	X	X
Cross-training of clinical personnel	X	X	X	X	X	X		X	X	X
Containment measures to prevent transmission	X	X	X	X	X	X	X	X	X	X
Just-in-time-training for non-clinical personnel (triage, transportation, food distribution, ADLs, etc.)								X		
Prioritization of antivirals/vaccine	X	X	X	X	X	X	X	X	X	X
Separation/triage of ill patients		X		X	X				X	

Appendix 10-A

	NYSDOH STAFF	PRIVATE PROVIDERS	LHDs	REGIONAL EPI STAFF	EMS	BEHAVIORAL HEALTH PROVIDERS	LAW ENFORCEMENT	VOLUNTEERS	VET	FUNERAL DIRECTORS, MEDICAL EXAMINERS, CORONERS
Differentiation of "worried well"		X			X	X			X	
FluSurge	X		X							
HERDS	X		X							
Healthcare proxies/ End-of-Life decisions					X	X				
Identification of early symptoms	X	X	X	X	X	X		X	X	
Risk Communication	X	X	X		X	X		X	X	X
Epidemiology of pandemic influenza	X	X	X	X		X	X	X	X	X
Risks of aerosolized procedures		X							X	
Personal protective equipment	X	X	X	X	X	X	X	X	X	X
Worker Restriction Policies	X		X	X			X			
Environmental disinfection	X		X	X						X
INFECTION CONTROL										
Personal Protective Equipment	X	X	X	X	X	X	X	X	X	X
Triage – first Points of Contact		X			X				X	
Droplet precautions/respiratory hygiene/cough etiquette	X	X	X	X	X	X	X	X	X	X
CLINICAL GUIDELINES										
Screening/assessment/management of infected										

Appendix 10-A

	NYSDOH STAFF	PRIVATE PROVIDERS	LHDs	REGIONAL EPI STAFF	EMS	BEHAVIORAL HEALTH PROVIDERS	LAW ENFORCEMENT	VOLUNTEERS	VET	FUNERAL DIRECTORS, MEDICAL EXAMINERS, CORONERS
patients	X	X	X		X	X			X	
Role of the provider	X	X	X		X			X	X	
Travel history	X	X	X	X	X				X	
Antiviral treatment regimens	X	X	X		X	X		X	X	
Adverse events	X	X	X		X	X			X	
Case definition	X	X	X	X	X				X	
Reporting guidelines	X	X	X	X	X	X		X	X	X
VACCINE PROCUREMENT/TREATMENT/USE										
Overview of vaccine production	X	X	X		X	X		X	X	
Safety monitoring	X	X	X		X	X		X	X	
Vaccine adverse events reporting system (VAERS)	X	X	X		X	X		X	X	
Investigational New Disease protocols	X	X	X						X	
Priority groups	X	X	X	X	X	X	X	X	X	X
Training of non-licensed persons to administer vaccine	X		X							
ANTIVIRAL PROCUREMENT/TREATMENT/USE										
Overview of treatment vs. prophylaxis	X	X	X	X	X	X	X	X	X	X

Appendix 10-A

	NYSDOH STAFF	PRIVATE PROVIDERS	LHDs	REGIONAL EPI STAFF	EMS	BEHAVIORAL HEALTH PROVIDERS	LAW ENFORCEMENT	VOLUNTEERS	VET	FUNERAL DIRECTORS, MEDICAL EXAMINERS, CORONERS
Personal protective equipment	X	X	X	X	X	X	X	X	X	X
Management of cases of novel influenza strain	X	X	X		X				X	
Prioritization hierarchy	X	X	X	X	X	X	X	X	X	X
Contraindications	X	X	X		X				X	
Adverse events monitoring/Med Watch	X	X	X		X				X	
Investigational new drug protocols	X	X	X						X	
Practices that reduce development of resistance	X	X	X		X				X	
Specifications for tracking/distribution/efficacy/safety of antivirals	X	X	X		X				X	
TRAVEL-RELATED DISEASE CONTROL AND COMMUNITY CONTAINMENT										
Isolation and quarantine at home/special facilities	X	X	X	X	X	X	X	X	X	
Community containment strategies	X		X	X	X			X		X
Awareness level of CDC/WHO travel advisories	X	X	X	X	X	X	X	X	X	X
Epi investigations and travel history	X	X	X	X	X				X	
WORKFORCE SUPPORT										
Stress and traumatic grief	X	X	X	X	X	X	X	X	X	X

Appendix 10-A

	NYSDOH STAFF	PRIVATE PROVIDERS	LHDs	REGIONAL EPI STAFF	EMS	BEHAVIORAL HEALTH PROVIDERS	LAW ENFORCEMENT	VOLUNTEERS	VET	FUNERAL DIRECTORS, MEDICAL EXAMINERS, CORONERS
Psychological issues of mass fatalities	X	X	X	X	X	X		X	X	
Coping strategies	X	X	X	X	X	X	X	X	X	X
Personal resilience	X	X	X	X	X	X	X	X	X	X
Services available in emergencies	X	X	X	X	X	X	X	X	X	X
HIGHLY PATHOGENIC H5N1 AVIAN INFLUENZA IN NON-HUMAN ANIMALS										
Overview of HPAI	X	X	X		X	X		X	X	
PUBLIC HEALTH INFORMATICS										
Commerce System	X	X	X	X	X	X		X	X	
Healthcare Emergency Response Data System	X		X	X						
Electronic Clinical Laboratory Reporting System	X									
Communications Directory	X		X							
Geographical Information Systems	X		X	X						
Nosocomial Outbreak and Reporting Application	X		X	X						
Communicable Disease Electronic Surveillance System	X		X	X						
Emergency Department Surveillance System	X		X	X						

Appendix 10-A

	NYSDOH STAFF	PRIVATE PROVIDERS	LHDs	REGIONAL EPI STAFF	EMS	BEHAVIORAL HEALTH PROVIDERS	LAW ENFORCEMENT	VOLUNTEERS	VET	FUNERAL DIRECTORS, MEDICAL EXAMINERS, CORONERS
Syndromic Surveillance System	X		X	X						
Medical/Professional Volunteer Database	X	X	X					X	X	
NYSDOH Staff Emergency Contact and Volunteer Database	X									
Clinic Data Management System	X		X	X						
Dashboard	X									

		FACILITY-BASED RNs	FACILITY-BASED ICPs	HOSPITALS	CHCs	LTCFs	LABS	VETs	HOSPITAL SUPPORT STAFF

Appendix 2: Healthcare Partners

COMMAND AND CONTROL									
Commerce system		X	X	X	X	X	X		
Risk communication for partners		X	X	X	X	X	X	X	X
ICS training		X	X	X	X	X	X		X
Legal Issues			X	X	X	X			
Preparedness and response								X	
Agencies' roles and responsibilities				X	X	X			
SURVEILLANCE/LAB									
ECLRS				X			X		
Reporting criteria (Epi and Clinical)		X	X	X	X	X	X	X	
Case investigation/contact tracing/implementation of control measures		X	X	X	X	X	X		X
Surge Capacity			X	X	X	X			
Antiviral regimens		X	X	X	X	X		X	
Infection Control		X	X	X	X	X	X	X	X
Isolation and Quarantine		X	X	X	X	X	X	X	
Specimen collection and transport			X	X	X	X	X	X	
Packaging and shipping			X	X	X	X	X	X	

		FACILITY-BASED RNs	FACILITY-BASED ICPs	HOSPITALS	CHCs	LTCFs	LABS	VETs	HOSPITAL SUPPORT STAFF
Diagnostics		X	X	X	X	X	X	X	
Length of time to test				X			X	X	
HEALTHCARE PLANNING									
ICS training		X	X	X	X	X	X		X
Modifications in Standards of Care		X	X	X	X	X	X	X	
Prevention and control of infection		X	X	X	X	X	X	X	X
Annual vaccination campaigns		X	X	X	X	X	X	X	X
Antiviral regimens		X	X	X	X	X		X	
Cohorting of patients			X	X	X	X		X	
Surge Capacity				X		X			
Reporting		X	X	X	X	X	X	X	
Cross-training of clinical personnel		X	X	X	X	X		X	
Containment measures to prevent transmission		X	X	X	X	X	X	X	X
Just-in-time-training for non-clinical personnel (triage, transportation, food distribution, ADLs, etc.)			X	X		X			X
Prioritization of antivirals/vaccine		X	X	X	X	X	X	X	X
Separation/triage of ill patients				X	X	X		X	
Differentiation of "worried well"				X	X	X			
FluSurge				X					

		FACILITY-BASED RNs	FACILITY-BASED ICPs	HOSPITALS	CHCs	LTCFs	LABS	VETs	HOSPITAL SUPPORT STAFF
HERDS			X	X		X			
Healthcare proxies/ End-of-Life decisions				X		X			
Identification of early symptoms		X	X	X	X	X		X	
Risk Communication		X	X	X	X	X		X	X
Epidemiology of pandemic influenza		X	X	X	X	X		X	
Risks of aerosolized procedures		X	X	X				X	
Personal protective equipment		X	X	X	X	X	X	X	X
Worker Restriction Policies			X	X	X	X			
Environmental disinfection			X	X	X	X	X		X
INFECTION CONTROL									
Personal Protective Equipment		X	X	X	X	X	X	X	X
Triage – first Points of Contact			X	X	X			X	
Droplet precautions/respiratory hygiene/cough etiquette		X	X	X	X	X	X	X	X
CLINICAL GUIDELINES									
Screening/assessment/management of infected patients			X	X	X	X		X	
Role of the provider		X	X	X	X	X		X	
Travel history			X	X	X	X		X	
Antiviral treatment regimens		X	X	X	X	X		X	
Adverse events			X	X	X	X		X	

		FACILITY-BASED RNs	FACILITY-BASED ICPs	HOSPITALS	CHCs	LTCFs	LABS	VETs	HOSPITAL SUPPORT STAFF
Case definition			X	X	X	X		X	
Reporting guidelines		X	X	X	X	X		X	
VACCINE PROCUREMENT/TREATMENT/USE									
Overview of vaccine production		X	X	X	X	X	X	X	
Safety monitoring				X	X	X		X	
Vaccine adverse events reporting system (VAERS)				X	X	X		X	
Investigational New Disease protocols				X	X	X		X	
Priority groups		X	X	X	X	X	X	X	X
Training of non-licensed persons to administer vaccine				X	X	X			
ANTIVIRAL PROCUREMENT/TREATMENT/USE									
Overview of treatment vs. prophylaxis		X	X	X	X	X	X	X	
Personal protective equipment		X	X	X	X	X	X	X	X
Management of cases of novel influenza strain				X	X	X		X	
Prioritization hierarchy		X	X	X	X	X		X	
Contraindications		X	X	X	X	X		X	
Adverse events monitoring/Med Watch				X	X	X		X	
Investigational new drug protocols				X	X	X		X	
Practices that reduce development of resistance		X	X	X	X	X		X	
Specifications for tracking/distribution/efficacy/safety of antivirals				X	X	X		X	

		FACILITY-BASED RNs	FACILITY-BASED ICPs	HOSPITALS	CHCs	LTCFs	LABS	VETs	HOSPITAL SUPPORT STAFF
TRAVEL-RELATED DISEASE CONTROL AND COMMUNITY CONTAINMENT									
Isolation and quarantine at home/special facilities		X	X	X	X	X		X	
Community containment strategies		X	X	X	X	X			
Awareness level of CDC/WHO travel advisories		X	X	X	X	X		X	
Epi investigations and travel history		X	X	X	X	X		X	
WORKFORCE SUPPORT									
Stress and traumatic grief		X	X	X	X	X	X	X	X
Psychological issues of mass fatalities		X	X	X	X	X	X	X	X
Coping strategies		X	X	X	X	X	X	X	X
Personal resilience		X	X	X	X	X	X	X	X
Services available in emergencies		X	X	X	X	X	X	X	X
HIGHLY PATHOGENIC H5N1 AVIAN INFLUENZA IN NON-HUMAN ANIMALS									
Overview of HPAI				X	X	X	X	X	
PUBLIC HEALTH INFORMATICS									
Commerce System				X	X	X		X	
Healthcare Emergency Response Data System				X					
Electronic Clinical Laboratory Reporting System				X		X			
Communications Directory									

		FACILITY-BASED RNs	FACILITY-BASED ICPs	HOSPITALS	CHCs	LTCFs	LABS	VETs	HOSPITAL SUPPORT STAFF
Geographical Information Systems									
Nosocomial Outbreak and Reporting Application			X	X		X			
Communicable Disease Electronic Surveillance System			X	X		X			
Emergency Department Surveillance System				X					
Syndromic Surveillance System				X					
Medical/Professional Volunteer Database		X	X	X	X	X		X	
NYSDOH Staff Emergency Contact and Volunteer Database				X					
Clinic Data Management System									
Dashboard									

Section 11: Workforce Support

I. Overview

II. Objectives

III. Activities by Pandemic Period

I. Overview

The response to an influenza pandemic will pose substantial physical, personal, social and emotional challenges to healthcare providers, public health officials, and other emergency responders and essential service workers. Based on experience with disaster relief efforts, enhanced workforce support activities can help responders remain effective during emergencies.

During an influenza pandemic, the occupational stresses experienced by healthcare providers and other responders are likely to differ from those faced by relief workers. Globally and nationally, a pandemic might last for more than a year, while pandemic waves in local communities may last five to ten weeks and recur in two or three waves. Medical and public health responders and their families will be at personal risk for as long as the pandemic continues in their community. Special planning is therefore needed to ensure that hospitals, public health agencies, first-responder organizations and employers of essential service workers are prepared to help employees maximize personal resilience and professional performance. An essential part of this planning effort involves the creation of alliances with community-based organizations and nongovernmental organizations with expertise in and resources for psychosocial support services or training.

The primary recommendations for workforce support focus on the establishment of psychosocial support services that will assist workers to manage emotional stress during response efforts to an influenza pandemic, and resolve related personal, professional and family issues. Additionally, informational materials for employees and their families will be prepared, and NYSDOH will collaborate with the Office of Mental Health (OMH) in the development of workforce resilience programs to assist families of deployed workers.

II. Objectives

- Ensure procedures for sharing information among emergency planners in schools, law enforcement agencies and local businesses, in collaboration with NYSDOH Public Affairs group.
- In collaboration with OMH, ensure that administrators, managers and supervisors within healthcare and public health organizations are familiar with, and actively encourage, the use of tools and techniques for supporting staff and their families in times of crisis.
- In collaboration with OMH, assure that staff members in hospitals and occupational health clinics are trained in behavioral techniques to help employees cope with grief, stress, exhaustion, anger and fear during an emergency.
- In collaboration with OMH, provide training in psychological support services to staff who are not behavioral health professionals (i.e., primary care clinicians, ED staff, medical/surgical staff, safety and security personnel).
- In collaboration with OMH, identify additional resources that can be made available to employees and their families during and after a pandemic.

- Prepare or obtain workforce support materials for distribution during a pandemic.
- Provide materials to healthcare and public health organizations that address healthcare and training issues related to behavioral issues associated with dealing with a pandemic influenza outbreak.
- In collaboration with OMH, develop a model workforce resilience program that could be exported to the local health departments and healthcare institutions that will help deployed workers prepare for, cope with, and recover from the social and psychological challenges in emergency field work.

III. Activities by Pandemic Period

Interpandemic and Pandemic Alert Periods

State and Local Health Departments:

- Institutionalize psychosocial support services for healthcare and public health staff members who participate in or provide support for the response to public health emergencies such as a pandemic influenza outbreak.

- Prepare educational and training materials on psychosocial issues for distribution to employees during an influenza pandemic.
  Include materials on:
  - stressors related to pandemic influenza;
  - signs of distress;
  - traumatic grief;
  - psychosocial aspects related to management of mass fatalities;
  - stress management and coping strategies;
  - strategies for building and sustaining personal resilience;
  - behavioral and psychological support services;
  - strategies for helping children and families in times of crisis;
  - strategies for working with highly agitated patients;
  - developing “family communication plans”;
  - services available during an emergency;
  - measures that persons can take to protect themselves and their families.

- Initiate development and implementation of a model workforce resilience program with the following goals:
  - maximize responders’ performance during a public health emergency;
  - maximize responders’ personal resilience during a public health emergency.

Healthcare Partners:

- Prepare educational and training materials on psychosocial issues for distribution to employees during an influenza pandemic.
  Include materials on:

- stressors related to pandemic influenza;
- signs of distress;
- traumatic grief;
- psychosocial aspects related to management of mass fatalities;
- stress management and coping strategies;
- strategies for building and sustaining personal resilience;
- behavioral and psychological support services;
- strategies for helping children and families in times of crisis;
- strategies for working with highly agitated patients;
- developing "family communication plans";
- services available during an emergency;
- measures that persons can take to protect themselves and their families.

Pandemic Period

State and Local Health Departments, and Healthcare Partners:

- Deliver psychosocial support services, including:
  - deployment of stress control/resilience teams;
  - identified rest and recuperation sites;
  - confidential telephone support lines staffed by behavioral health professionals;
  - information for commuters;
  - services provided by community-and faith-based organizations.

- Provide information to responders on:
  - progress of the pandemic;
  - work issues related to illness, sick pay, staff rotation, shift coverage, overtime pay, use of benefit time, etc.;
  - family issues (i.e., availability of child care);
  - issues related to:
    - availability of vaccines,
    - antiviral drugs, and PPE,
    - infection control practices as conditions change,
    - approaches to ensure patient adherence to medical/public health measures,
    - dealing with the "worried well;" guidance on distinguishing between psychiatric disorders and common stress reactions;
  - written instructions for "just-in-time" cross-training on essential tasks;
  - behavioral reactions to movement restrictions (especially for police, firefighters, and community outreach workers);
  - information on methods to deal with stigmatization or discrimination because of role in a pandemic influenza response.

- Implement workforce resilience programs which:
  - conduct briefings and training on behavioral health, resilience, stress management issues, and coping skills;
  - train supervisors in strategies for maintaining a supportive work environment;
  - deploy several persons as a team;
  - monitor occupational health, safety and psychological well-being of deployed staff;
  - provide access to activities that help reduce stress;
  - refer to behavioral health services upon request;
  - continue to provide outreach to employees' families to address ongoing psychological and social issues;
  - interview responders and family members to assess lessons learned;
  - provide ongoing access to post-emergency psychosocial support services for responders and their families;
  - conduct an ongoing evaluation of the after-effects of the pandemic on employees' health, morale and productivity.

Section 12: Highly Pathogenic H5N1 Avian Influenza in Non-Human Animals

I. Overview

Avian influenza (AI) type A viruses have been found in over 40 species of wild and domestic birds and cases occur every year throughout the world. Low pathogenicity (based on *in vivo* mortality assay and sequencing of the hemagglutinin cleavage site) AI occurs periodically in the U.S. including New York. The virus is shed in the fecal droppings, saliva and nasal discharges of some avian wildlife species, and infected domestic poultry. Contaminated water is a common source of infection for birds.

Many different subtypes of type A AI have been identified. The H5 and H7 subtypes are those most often associated with morbidity/mortality in birds. Highly Pathogenic Avian Influenza (HPAI) is considered to be a disease primarily of domestic poultry, and as such, the United States Department of Agriculture (USDA), in conjunction with the New York State Department of Agriculture and Markets (NYSDAM), will have the lead for non-human disease surveillance and control if and when HPAI is detected in New York State.

H5N1 is a HPAI subtype circulating in Southeast Asia since 1997, and according to the World Health Organization, since 2003 is responsible for the largest epizootic of HPAI ever recorded. It is of concern to public health because it can spread from birds to people. However, H5N1 has accounted for only a relatively small number of human illnesses. Person to person spread has been documented only very rarely. H5N1 is considered to have the potential to become pandemic because it is a novel strain for the human population (no human immunity), and it has resulted in severe morbidity and mortality in the diagnosed human cases. To cause a human pandemic, the subtype would need to become capable of spreading easily from person to person, a capacity not yet demonstrated.

Wild birds may have contributed to the rapid spread of the most recent H5N1 outbreaks in eastern Asia. Infection has been documented primarily, but not exclusively, in waterfowl and shore bird species. Recent data suggest that HPAI H5N1 is being spread by migrating waterfowl, some of which may be asymptomatic. There are also continuing reports of the transport of domestic fowl for food and sport (such as cock fighting) from affected areas to adjacent regions.

This HPAI H5N1 strain has recently been confirmed in domestic and wild birds in Europe. There is no evidence that this strain exists in birds or humans at this time in the Western Hemisphere. Experts advise that historically AI has not been carried by migratory birds from Europe or Asia to the Americas. Many strains of low pathogenicity AI, including H5 and H7 types, are known to routinely occur in migratory waterfowl and shorebirds in the U.S.

Information about AI worldwide is available from the World Health Organization at http://www.who.int/csr/disease/avian_influenza/avian_faqs/en/index.html . Additional AI information from a public health perspective is available from the Centers for Disease Control and Prevention (CDC) at http://www.cdc.gov/flu/avian/ . A summary of initial human cases is available in World Health Organization. Current concepts: Avian influenza (H5N1) infection in humans. *New England Journal of Medicine* 2005;353:1374-1385. Findings of HPAI H5N1 in Asian waterfowl are available in Li KS, Guan Y, Wang J, et al. Genesis of a highly pathogenic and potentially pandemic H5N1 influenza virus in eastern

Asia. *Nature* 2004;430:209-213 and Liu J, Xiao H, Lei F, et al. Highly pathogenic H5N1 influenza virus infection in migratory birds. *Science* 2005;309:1206.
This section describes, from a NYS public health perspective, the surveillance system, availability of laboratory diagnostic procedures, and activities by pandemic period in preparation for, and during, an outbreak in the U.S. of HPAI with human risk. A separate interagency AI plan is under development providing more specific details for each NYS state agency's responsibilities.

II. Objectives

- Summarize current capacity and responsibilities for non-human animal surveillance and laboratory testing for HPAI.
- Summarize anticipated non-human animal disease control activities.

III. Surveillance for Non-Human Animal Infection

AI surveillance may be instituted in domestic birds (e.g., poultry), wild free-ranging birds, captive birds, and mammals during different pandemic influenza and/or AI plan periods. The types of surveillance and areas of responsibility are outlined below. In addition, special situations such as importation (legal and illegal) are described. Confidentiality of animal owners, those reporting disease, and certain detailed address information must be maintained with all non-human animal surveillance systems while still allowing for communication and control activities.

A. Surveillance in Domestic Birds (e.g., poultry)

State and federal programs currently conduct surveillance for AI among selected domestic poultry, including testing for H5N1. See http://www.aphis.usda.gov/lpa/issues/avian_influenza/. Specific types of poultry surveillance are determined at the state level. In New York, NYSDAM is responsible for domestic bird (e.g., poultry) AI surveillance and control. Periodic sampling is done at live bird markets. In addition, all poultry farms either within or outside New York that have permits to provide poultry to live markets in New York must document that they are free of AI. NYS domestic flocks, regardless of whether they are associated with live bird markets, have ill or dead birds tested by veterinarians for AI when there is any clinical, epidemiologic, or pathologic suspicion of AI. See http://www.agmkt.state.ny.us/AI/AvianFlu.html . Testing is conducted by the New York State Veterinary Diagnostic Laboratory (NYSVDL) at Cornell University's Animal Health Diagnostic Center with results reported to NYSDAM and the sample submitter. Any domestic bird owners or their veterinarian with concerns about AI in their birds should contact NYSDAM at 518-457-3502 to discuss the need for testing. In New York City, the New York City Department of Health and Mental Hygiene should also be contacted at 212-788-4160**.**

Captive waterfowl, exhibition gamefowl, and poultry flocks reared on backyard premises have been used previously as sentinels for active surveillance for avian diseases (e.g., West Nile virus, St. Louis encephalitis virus, and other diseases). Use of sentinel species is under consideration as part of the national surveillance plan and may be used in key areas such as Alaska where bird migratory pathways from Asia and the United States overlap.

B. Surveillance in Wild (Free-Ranging) Birds

Multiple free-ranging wild bird species in Asia and Europe have been shown to have clinical disease associated with naturally acquired HPAI H5N1 infection. The majority of these cases have reportedly occurred as isolated instances, involving small numbers of animals from a limited number of species, and primarily in areas with pre-existing widespread poultry infection. While exact numbers and species are not always known, species with confirmed H5N1 infection include grey herons, little egrets, tree sparrows, pigeons, peregrine falcons and unspecified crow and magpie species. In addition, there was a large die-off involving multiple waterfowl species at a lake in China during 2005. The species affected in this large outbreak included bar-headed geese, brown-headed gulls, great black-headed gulls, ruddy shelducks and great cormorants. While not apparently involved in any outbreak situations as of yet, Whooper swans and mallards seem to have been affected at multiple sites and in larger numbers than many other species.

The possibility for bird mortality in other species is unknown at this time. Wild birds are collected nationally for many government-agency and university-sponsored research studies. Collection of samples specifically for AI surveillance may soon be enhanced due to the risk of introduction of H5N1 into this hemisphere. Attention is being focused on the West Coast and Alaska where, it is believed, migratory birds may carry the virus into the United States from Asia and Russia. With this increased attention, more cases of low pathogenicity AI in wild birds are being reported, including H5N1 recently in Canada (unrelated to the HPAI H5N1 strains in Asia and Europe). Additional information is available from the National Wildlife Health Center (including guidance for people handling wild birds) at http://www.nwhc.usgs.gov/research/avian_influenza/avian_influenza.html.

The New York State Department of Environmental Conservation's Wildlife Pathology Unit (WPU) is responsible for wild (free-ranging) bird disease surveillance. Wild birds die of many more likely causes than AI, and the WPU can assess those causes. With no HPAI H5N1 in the U.S., there is no systematic wild bird AI surveillance in NY at this time, although systems for targeted surveillance are under consideration. Surveillance of waterfowl through hunter check stations is under consideration at the national level for key early detection areas such as Alaska. This type of surveillance may be considered in NYS depending on availability of resources.

Previously in 2005, some birds were submitted by the WPU to the USDA National Veterinary Services Laboratory (NVSL) for AI testing, and no HPAI was reported. In addition, the New York State Department of Health's (NYSDOH) Wadsworth Center is conducting influenza research on wild birds in collaboration with the WPU and will be conducting AI testing on some samples submitted by the WPU as part of WNV, botulism,

or other avian morbidity/mortality surveillance. Some of the birds submitted to the WPU may also be sampled for AI monitoring at the NYSVDL at Cornell, upon determination by the WPU that the birds are at high risk for HPAI, using guidelines developed in cooperation with NYSDAM. The WNV guidelines provide detailed information for bird submission procedures and appropriate contacts. See 2005 West Nile Virus Update: Appendix D on the Health Information Network: https://commerce.health.state.ny.us/hpn/westnile/guidelines.html#bird

C. Surveillance in Captive (Zoologic or Privately Owned) Birds

Captive wild birds have been clinically affected by HPAI H5N1 AI in Europe and Asia, most notably in an outbreak at a zoo in Thailand during the 1990s. This is the only reported outbreak in captive wild birds to date. Affected species included raptors (Grey-headed fish eagle, Serpent eagle, Hawk eagle, Spotted wood owl, Brown fish owl, Spot-bellied eagle owl, and Buffy fish owl), songbirds (Scaly-breasted munia and Black drongo) and Grey heron. HPAI H5N1 was also confirmed in a psittacine bird (Pionus parrot) and multiple southeast Asian mesias (finches) during quarantine in the United Kingdom.

American Zoo and Aquarium Association (AZA) institutions conduct veterinary and pathologic assessment of all animal deaths on their premises, including submission of appropriate diagnostic samples for avian flu testing when indicated. Testing specifically for AI on these specimens in NY is conducted at the NYSVDL at Cornell University with legal authority for this surveillance vested in the NYSDAM. Information about AZA AI guidelines is available at http://www.aza.org/Newsroom/PR_AvianFlu/.

D. Surveillance in Mammals

To date, information about natural H5N1 infection in mammals is limited to feline species. There have been two outbreaks of HPAI H5N1 in felids housed in zoos in Thailand and a few cases in felids at a national park in Vietnam. In Thailand during December 2003, two tigers (*Panthera tigris*) and two leopards (*Panthera pardus*) showed clinical signs of a respiratory disease and died unexpectedly. Virus isolation and RT-PCR confirmed the presence of the H5N1 virus that was currently circulating among poultry flocks in the area. The animals had been fed fresh chicken carcasses from a local slaughterhouse. A second, larger outbreak occurred at the end of 2004 at the biggest tiger zoo in Thailand. A total of 147 tigers died or were euthanized due to H5N1. In this case, although the outbreak was initiated by feeding contaminated carcasses to the animals, it appears to have been maintained by horizontal transmission of the virus between the animals (specific transmission mechanism currently unknown). Occasionally, other mammals have tested positive for H5N1 in association with the outbreak in Asia.

The Erasmus Medical Center in the Netherlands has published some research showing that: 1) domestic cats that are inoculated intra-tracheally with an H5N1 strain isolated from a Vietnamese man who died of the disease become symptomatic, show gross lesions characteristic of H5N1 infection and the virus can be re-isolated from their tissues, 2) horizontal transmission of the same virus can occur between domestic cats in the laboratory setting, and 3) feeding infected chicks to domestic cats can produce clinical symptoms in the animals with subsequent viral shedding.

Ferrets are often used as a research model in influenza studies. Laboratory work has demonstrated that infection of ferrets with human derived H5N1 virus strains is fatal. However, infection of ferrets with avian derived strains of H5N1 did not result in fatal disease. The possibility of natural infection in other species of mustelids has not been documented.

Without additional evidence of HPAI risk to domestic or free-ranging mammals in the U.S., mammals will not be prioritized at this time for early detection and disease surveillance. Testing for HPAI in mammals is available, when indicated, through the NYSVDL at Cornell University. Specific guidelines for surveillance are under development.

E. Importation

All legally imported birds are tested before they leave their country of origin according to country-specific requirements. Once they arrive in New York State, they are immediately quarantined at a federal facility in Newburgh, New York for one month. AI testing of these birds is routine, and any bird testing positive for AI is euthanized and appropriately disposed of. For more information on importation requirements, contact the USDA Animal and Plant Health Inspection Service Veterinary Services New York office at 518-869-9007.

The federal Department of Homeland Security, Customs and Border Protection, Department of Interior, U.S. Fish and Wildlife Service and the U.S. Department of Agriculture jointly handle the investigation and control of illegally imported or smuggled animals and animal products. Based on known patterns for smuggling, agents inspect for smuggled birds or poultry products. If any birds are found, they are sampled with testing conducted at the NVSL for AI and other foreign animal diseases. Illegally imported poultry products are either returned to the country of origin, or destroyed according to APHIS policy.

IV. Laboratory Diagnosis for Non-Human Animal Infection

Laboratory testing for all strains of AI, including H5N1, in non-human animals is available from several laboratories. Domestic birds (poultry) are routinely tested by NYSDAM at the NYSVDL, part of Cornell University's Animal Health Diagnostic Center. A sample of wild birds submitted to the WPU for WNV or other evaluation will be submitted for testing to Cornell, in accordance with guidelines to be developed. The

National Wildlife Health Center (NWHC) laboratory in Madison, Wisconsin may also be considered as a testing resource by the WPU. Additional bird flu research is underway at the NYSDOH Wadsworth Center.

V. Response to HPAI in the United States

Any HPAI virus is considered a Foreign Animal Disease (FAD) and as such the discovery of any HPAI in poultry, wild birds, or captive exotic birds in the United States would result in an immediate state and federal response to control and eradicate the virus. The USDA Animal and Plant Health Inspection Service (USDA-APHIS-VS) has primary authority over all FADs found in the U.S. NYSDAM would work in conjunction with USDA-APHIS to quarantine and take all necessary measures as needed to eradicate HPAI. Such measures may include culling of potentially exposed or infected animals, and vaccination of animals in adjacent areas. In NYS, NYSDEC has the legal responsibility for wild birds and game bird breeders, and the U.S. Fish and Wildlife Service (USDOI) has responsibility for migratory birds, including migratory waterfowl. Thus, these agencies are involved in cooperative efforts for avian influenza surveillance and control.

In the event such a response is needed for any HPAI strain, WHO and CDC have advised that workers responding to such an outbreak take certain precautions to prevent human infection with HPAI. It is recommended that poultry workers and workers who will respond to a potential outbreak of HPAI receive the currently available human seasonal flu vaccine (to reduce the possibility of a worker being co-infected with a human and avian flu virus) and to receive prophylactic antiviral medications in the event of an exposure. These workers would also be prioritized for any human HPAI H5N1 vaccines that are developed, if there is an HPAI H5N1 outbreak in poultry.

Federal employees will presumably have worked with their own occupational health providers to have vaccine and medications as needed. New York State employees will need to coordinate through NYS occupational health, and this may require assistance through the NYSDOH to acquire and provide vaccine and antiviral medication. Non-governmental employees with potential exposure will need to work with their private and employment health care providers. LHDs can assist by providing information and triage of questions to appropriate state and federal agencies.

Occupational health issues will be of concern not only for those working with potentially infected poultry, but also those in contact with potentially infected wildlife. NYSDOH will work with other federal and state agencies to develop and disseminate guidelines for protection. Within laboratories, guidelines developed by the NYSDOH Wadsworth Center are recommended for those handling non-human as well as human samples potentially infected with HPAI (see Section 2: Surveillance and Laboratory Testing).

VI. Activities by Pandemic Period

Interpandemic and Pandemic Alert Periods

Federal agriculture/wildlife agencies (USDA/APHIS, WS; USDOI/FWS):

- Participate in routine surveillance, testing, and control activities for avian influenza in wild birds.
- Participate in collection and testing system for wild birds as part of an enhanced influenza surveillance system.
- Education for wild bird morbidity/mortality reporting.
- If avian influenza is determined to be a risk for NY, provide personal protective gear for their workers handling birds likely to be infected.
- If avian influenza is determined to be a risk for NY, provide guidance about personal protection for contact with wild animals.
- If avian influenza is determined to be a risk for NY, coordinate occupational health issues for their workers including availability of human flu vaccine and antiviral drugs as indicated for workers handling birds likely to be infected.

State Agriculture Department (NYSDAM):

- Routine surveillance, testing, and control for avian influenza in birds and non-human mammals.
- Participate in coordination of testing of wild and captive birds as part of an enhanced influenza surveillance system.
- Education for bird morbidity/mortality reporting.
- If avian influenza is determined to be a risk for NY, provide personal protective gear for their workers handling birds likely to be infected.
- If avian influenza is determined to be a risk for NY, provide guidance about personal protection for contact with animals.
- If avian influenza is determined to be a risk for NY, coordinate occupational health issues for their workers including availability of human flu vaccine and antiviral drugs as indicated for workers handling birds likely to be infected.

State Environmental Department (NYSDEC):

- Participate in routine surveillance, testing, and control activities for avian influenza in wild birds.
- Participate in collection and testing system for wild birds as part of an enhanced influenza surveillance system.
- Education for wild bird morbidity/mortality reporting.
- If avian influenza is determined to be a risk for NY, provide personal protective gear for their workers handling birds likely to be infected.
- If avian influenza is determined to be a risk for NY, provide guidance about personal protection for contact with wild animals.
- If avian influenza is determined to be a risk for NY, coordinate occupational health issues for their workers including availability of human flu vaccine and antiviral drugs as indicated for workers handling birds likely to be infected.

State Health Department (NYSDOH):

- Develop materials and help educate LHDs and healthcare providers about HPAI.
- At the Wadsworth Center, conduct research about the patterns of AI in wild birds.
- Partner with other state agencies to develop a NYS interagency AI plan and guidelines for surveillance and personal protection.

Local Health Departments:

- Using materials developed by NYSDOH and other state and federal agencies, help educate healthcare providers and the public about HPAI and potential risk to humans.
- Triage questions about AI in animals to veterinary and agriculture officials.
- Some local health departments may choose to participate with other agencies in avian influenza surveillance, testing, and control activities in birds.

Healthcare Providers:

- Refer patients with questions about AI in animals to veterinary and agriculture officials.

<u>Pandemic Period (activities similar to those in previous period, but increased in scope and intensity)</u>

Federal agriculture/wildlife agencies (USDA/APHIS, WS; USDOI/FWS):

- Participate in routine surveillance, testing, and control activities for avian influenza in wild birds.
- Participate in collection and testing system for wild birds as part of an enhanced influenza surveillance system.
- Education for wild bird morbidity/mortality reporting.
- If avian influenza is determined to be a risk for NY, provide personal protective gear for their workers handling birds likely to be infected.
- If avian influenza is determined to be a risk for NY, provide guidance about personal protection for contact with wild animals.
- If avian influenza is determined to be a risk for NY, coordinate occupational health issues for their workers including availability of human flu vaccine and antiviral drugs as indicated for workers handling birds likely to be infected.

State Agriculture Department (NYSDAM):

- Routine surveillance, testing, and control for avian influenza in birds and non-human mammals.
- Participate in coordination of testing of wild and captive birds as part of an enhanced influenza surveillance system.
- Education for bird morbidity/mortality reporting.
- If avian influenza is determined to be a risk for NY, provide personal protective gear for their workers handling birds likely to be infected.
- If avian influenza is determined to be a risk for NY, provide guidance about personal protection for contact with animals.

- If avian influenza is determined to be a risk for NY, coordinate occupational health issues for their workers including availability of human flu vaccine and antiviral drugs as indicated for workers handling birds likely to be infected.

State Environmental Department (NYSDEC):

- Participate in routine surveillance, testing, and control activities for avian influenza in wild birds.
- Participate in collection and testing system for wild birds as part of an enhanced influenza surveillance system.
- Education for wild bird morbidity/mortality reporting.
- If avian influenza is determined to be a risk for NY, provide personal protective gear for their workers handling birds likely to be infected.
- If avian influenza is determined to be a risk for NY, provide guidance about personal protection for contact with wild animals.
- If avian influenza is determined to be a risk for NY, coordinate occupational health issues for their workers including availability of human flu vaccine and antiviral drugs as indicated for workers handling birds likely to be infected.

State Health Department (NYSDOH):

- Develop informational materials and help educate LHDs and healthcare providers about HPAI.
- Provide NYSDOH call center with scripts and taped messages about HPAI.
- At the Wadsworth Center, conduct research about the patterns of AI in wild birds.
- Partner with other state agencies to implement the NYS interagency AI plan and guidelines for surveillance and personal protection.

Local Health Departments:

- Using materials developed by NYSDOH and other state and federal agencies, help educate healthcare providers and the public about HPAI and risk to humans.
- Triage questions about AI in animals to veterinary and agriculture officials.

Healthcare Providers:

- Refer patients with questions about AI in animals to veterinary and agriculture officials.

Section 13: Public Health Preparedness Informatics

I. Summary of Informatics Planning

II. Overview
- A. Purpose
- B. Overall Responsibility
- C. Contact Information, Incident Command/Response
- D. NYSDOH Health Commerce

III. Program Planning, Support and Response
- A. Command and Control
- B. Surveillance
- C. Public Health and Clinical Laboratories
- D. Countermeasure Response Administration
- E. Risk Communications
- F. Healthcare and Emergency Response

IV. Alerting and Notification Infrastructure
- A. Interactive Voice Response (IVR) Systems
- B. Mass Fax
- C. BlackBerry
- D. HF Radio
- E. Satellite Phone

V. Distance Learning and Remove Meeting/Collaboration
- A. Video Conference (VC)
- B. Webinar
- C. Secure Discussion Forum (SDF)

VI. Availability and Disaster Recovery
- A. Problem Detection and Response
- B. Accessibility
- C. Availability and Disaster Recovery

Appendices:
- 13-A: Automated Bureau Mail Log (BML) Notification Contacts and Roles.
- 13-B: The NYSDOH Notification System: Business Rules for Local Health Departments, Hospitals, NYSACHO, and other IHANS Partner Organizations
- 13-C: Overview of the Health Emergency Response Data System (HERDS) – Hospital Instance
- 13-D: Commerce Access and Alert System Readiness

I. Summary of Informatics Planning for Pandemic Influenza.

The NYSDOH Pandemic Influenza Informatics Plan leverages the existing public health preparedness information systems on the NYSDOH Health Commerce Network for planning, communications, surveillance, and response activities during an influenza pandemic. These systems and their respective summary reports, charts and maps will be accessed by program areas, executive leadership staff, and other responders on a 24/7 basis for ongoing situational assessment and decision support. The systems and their general functions are summarized in the following table and presented in detail in Parts II through VI of this Section.

Contact information maintained in the Commerce communications directory will be used for all emergency or informational notifications.

Several Commerce systems will be used to monitor disease trends during an influenza pandemic. These systems monitor spatial, temporal and infection rate patterns. The detection of an unusual event may trigger activation of enhanced surveillance and tracking systems. Event detection and routine surveillance systems include reporting of laboratory test results through the Electronic Clinical Laboratory Reporting System (ECLRS); suspect and confirmed human case reporting through the Communicable Disease Electronic Surveillance System (CDESS); hospital patient admissions reporting using the Health Emergency Response Data System (HERDS); Emergency Department (ED) syndromic reporting for unusual clusters of symptoms and chief complaints; long term care facility disease reporting using HERDS and the Nosocomial Outbreak Reporting Application (NORA); and reporting by other facilities including home health care, adult homes and primary care clinics using the HERDS system. Additionally, the NYS Department of Agriculture and Markets will share data and alerts on avian influenza and influenza in mammals through the Commerce Integrated Health Alerting and Notification System (IHANS) and the Commerce executive decision making dashboard. Once the presence of novel influenza has been detected, CDESS will be used to track cases and manage information on contact tracing and quarantine, travel history, and case isolation. CDESS data will be available in maps and statistical reports using the Commerce spatial data warehouse, the GIS system, and executive dashboard decision support system. Health facility needs and available resources (airborne isolation rooms, staff, beds, and equipment) and patient traffic will be tracked through the HERDS system. HERDS patient tracking and locator systems will assist the public in locating family members and tracking bodies of the deceased in mass mortuary locations.

A Counter Measure and Response Tracking System (CMRTS) will support vaccine and antiviral inventory tracking, SNS resource tracking, and adverse event monitoring and be integrated with the Clinic Data Management System (CDMS) for mass administration of vaccine or antivirals. The Commerce Professional Medical Volunteer System and NYSDOH emergency contact and volunteer database system will be used to maintain a roster of medical professionals for medical surge and POD administration.

Function	NYSDOH Health Commerce System to be Used	Informatics Chapter 13 Section
Command & Control • Incident command • Critical contact information • 24/7 Communications, Emergency Notifications and Alerting • Situational Awareness	• Team room software for situational report collaboration; Finalized Situation reports distributed though Commerce Executive Decision Making Dashboard and Commerce notification system structure. • NYSDOH Commerce Communications Directory • Integrated Health Alert and Notification System (IHANS) and NYSDOH Duty Officer, Secure discussion Forum, Webinar and Statewide Video-conferencing system • Executive decision making dashboard, GIS spatial, static and time series analvses	II.D.4a-4e. 4.g-4.i III.A.1 III.A.4 III.A.7 & III.F. 1-3
Surveillance • Event detection	• ED chief complaint data, RODS, Medicaid prescriptions , County unusual ED admission clusters tracking application • NORA (hospitals, nursing homes) • ECLRS confirmed positive specimens; CDESS suspect and confirmed case tracking • HERDS weekly summary of influenza cases; deaths at hospitals, clinics, home health care, and adult care facilities • HERDS and CDESS GIS spatial visualization of the data	II.D.5 III.B.1
• Enhanced Surveillance. In-depth person-based case tracking & surveillance supplement (influenza vaccine & antiviral history, hospitalization, isolation, travel) & contact tracing	• CDESS (laboratory confirmed & suspect cases) • ECLRS - Laboratory test confirmation	II.D.5 III.B.3
• Outbreak tracking -- Daily/Weekly tracking of total case numbers and disposition across all facility types	• HERDS daily or weekly summary of cases; deaths at hospitals, clinics, home health care, and adult care facilities • Nursing Home Surveillance and Response System (NHSRS) daily case summary, deaths	III.B.4
• Laboratory Response Network communications; electronic laboratory specimen test referral	• IHANS • HERDS -- LRN specific forms	III.C.1 III.C.2
Risk Communications • Communications with important private sector contact points; special needs population • Locating patients in facilities by relatives (the public) • Summary data regarding pandemic spread; other resource information • Training, procedures, educational resources on the web for providers, public health officials	• IHANS • Communications directory maintenance of key contact information • HERDS patient locator module • Commerce data system summaries developed through GIS and statistical summaries provided to public website; • HAN, HPN and HIN specific resource pages	III.E.1 III.E.3 III.E.2, 3
Healthcare Response • Facility Resource Tracking/management (personnel, pharmaceuticals, vaccine/anti-viral inventory, supplies, bed/surge capacity, equipment (ventilators)) • Laboratory capacity, resource needs; • Community and facility based containment measures; infection control and isolation capacity • Patient tracking; tracking of mass mortuary	• HERDS system for health facility reporting including hospitals, clinics, local health departments, pharmacies – Critical Asset Survey forms • Nursing Home Surveillance and Response System (NHSRS) • Specific HERDS system surveys and forms for LRN resource tracking • Specific HERDS system forms designed for facility tracking; HERDS AIIR room capacity survey; NHSRS surveys; and NORA • HERDS patient tracking module	II.D.4.f III.F.1 III.C.1 III.A.5
Countermeasure Administration & Response • Vaccine and antiviral needs • Risk group assessment • Tracking of vaccination and antiviral inventory and distribution • adverse event tracking • vaccination and anti-viral supplies SNS tracking for POD asset needs • mass clinic administration	• HERDS architecture Counter Measure Resource & Tracking System (CMRTS) • Clinic Data Management System (CDMS);	III.D.1 III.D.2
Volunteer Rosters	• The Professional Medical Volunteer System and NYSDOH Emergency contact and volunteer database system	IIII.A.5

II. Overview

A. **Purpose**

NYSDOH has evolved an array of informatics capabilities, which support preparedness and response to Pandemic Influenza. These include the NYSDOH secure health commerce system, its related applications and information systems as well as supportive infrastructure related to alerting and notification; distance learning and remote meeting/collaboration; and availability/recovery. NYSDOH critical internal infrastructure systems are also essential to the Agency's response to any event. These internal infrastructure systems include: lotus notes office automation; network management and services (internet services, external e-mail routing, WAN/LAN interconnectivity); critical server management and operation; and security infrastructure. The purpose of this Section is to describe these capabilities and how they are to support the NYSDOH planning, preparedness and response to a pandemic influenza event.

B. **Overall Responsibility**

Bureau of Healthcom Network Systems Management (BHNSM) within the Information Systems and Health Statistics Unit (ISHSG) has the overall technical and project responsibility for Public Health Preparedness (PHP) Informatics infrastructure and critical internal infrastructure systems. BHNSM is responsible for all of the systems listed above with the exception of Security Infrastructure, which is partially shared with the Security Unit within the Healthcom Services Bureau (HSB) within ISHSG.

The Security Unit is responsible for overall security Policy, intrusion detection/vulnerability assessment, remote access/VPN, NYSDOH authentication and identity management, change control management over security architecture and rule sets. BHNSM works with HSB in operating and implementing security policy rule sets within specific electronic architecture devices.

C. **Contact Information, Incident Command/Response and Alert Notifications**

Notification processes are in place to activate response within BHNSM in the event of an infrastructure problem/failure, a PHP event, receipt of Health Alert Network notifications (aka HAN alerts) or emergent commerce or HAN posting requests. BHNSM maintains two 24/7 on-call rosters: one for response to infrastructure problems and contacts regarding emergent events, the other for off-hours HAN postings. An incident commander is established in the event of a critical service outage or in a PHP event. These are identified in Appendix VI.A. The infrastructure on-call roster is accessible during off-hours through the BHNSM main number, 518-473-1809. The HAN coordinator and HAN–on-call roster is accessible through the contact information provided in the Communications Directory (ComDir) and via automated processes as described below.

Automated processes monitor viability of critical systems within the agency network and within the commerce system. An automated notification is sent to the infrastructure response on-call roster and the incident commanders in the event of an outage or problem with these systems.

There are several pathways for health alerting, and/or notification of need for posting of a health alert. Specific external entities (CDC HAN, CDC Epi-X, CDC/Other, NYS OHS, NYCDOHMH) may send an alert notification or alert content for posting on the NYS commerce HAN to Health Alert BML (healthalert@health.state.ny.us.) This will trigger automated notification of the Public Health Preparedness Unit (Appendix 13-A) who will review the notification and post on the NYS HAN system using the Commerce Alert Tool. The PHP Unit may also forward the posting responsibility to hinweb@health.state.ny.us which will in turn trigger automated notification of the HAN Coordinator and HAN on-call roster for posting using the alert tool. Specific DOH executive staff (Appendix 13-A) may directly request posting of an alert to the NYS Commerce HAN by forwarding the content and request to hinweb, which will in turn trigger an automated notification to the HAN on-call staff to post the alert.

Request for posting of Alerts and/or notification of alert situations may also be made to NYSDOH using the Duty officer System (see Appendix 13-A). Regional Offices and Local Health Departments may also use the Alert Tool to initiate alerts within their regions or jurisdictions.

D. NYSDOH Health Commerce

1. Background

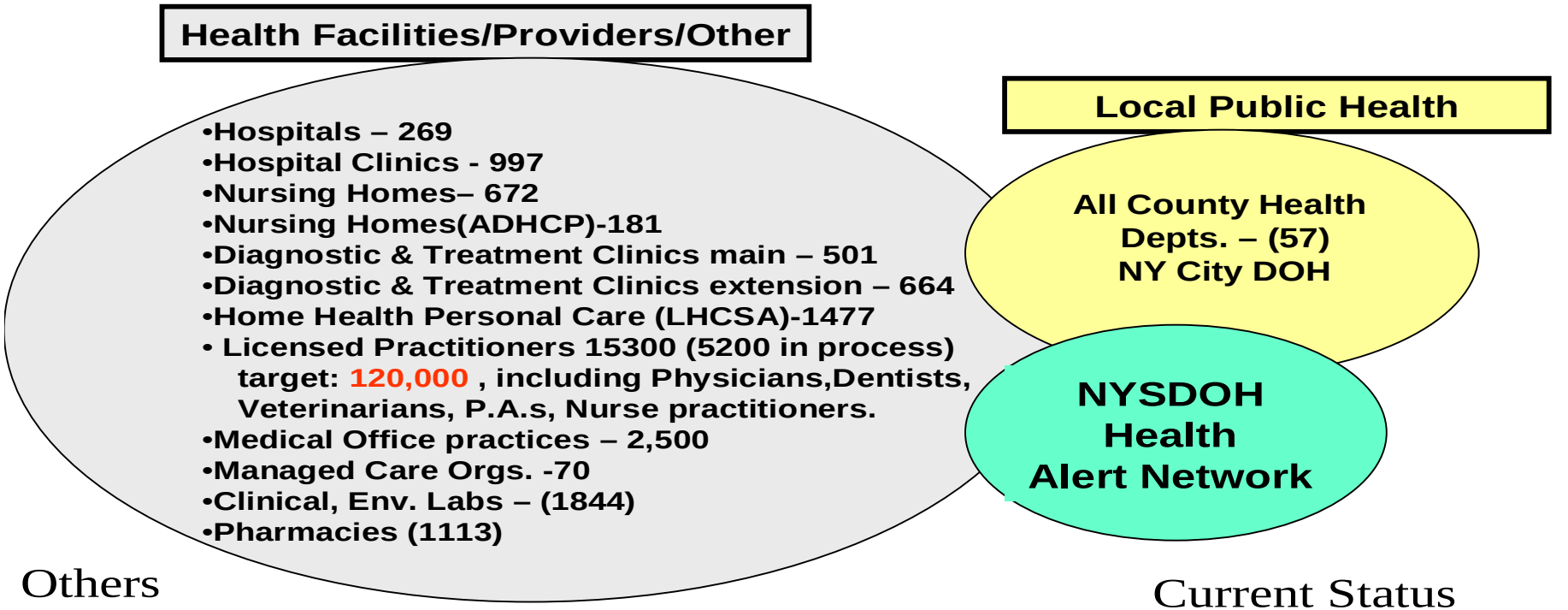
The Health Commerce System (Figure 1, next page) is entirely web-based and designed to be the Department's strategic infrastructure to support and integrate all of its information interchange activities with external agencies. It is accessible via the internet and by other venues supporting IP protocol communications. It is based on standards espoused by DHHS HIT framework and CDC PHIN. The Health commerce system is comprised of three domains, each tailored to the specific information exchange needs of the intended audience. The Health Information Network[1] (HIN) is the web 'portal' by which Local Health Departments access the Commerce system. The Health Provider Network (HPN) is the portal by which the clinical/Health provider organizations access the commerce system. The Health Alert Network (HAN) is a third domain on the NYSDOH Health Commerce System which provides health alerting for public Health Preparedness for both the HIN and HPN. The commerce system is available at https://commerce.health.state.ny.us.

2. Basis

In 1996 NYSDOH Commissioner of Health memorandum (DOHMEM 96-10) promulgated HIN as the official Department platform for health information

[1] The term network as it is used here is not a dedicated data communications network. Health commerce is a web based system. Rather it is to denote a network of organizations affiliated with the NYSDOH Health commerce system for the purpose of health information interchange.

Figure 1. NYSDOH Health Commerce System:
Routine Information Interchange & Public Health Preparedness



Others

Federal: DHHS
NYState: OHS, CSCIC (CyberSecurity), Dept. of Agriculture & Markets, State Police, SEMO, Insurance Dept., Mental Health, Environmental Conservation
NYC: FDNY
Other States: NJ DOH; CT DOH

Current Status

40,000 accounts
13,000 Organizations
2,800 User logins /day
450,000 access hits/day
150 mission critical applications

interchange with Local Health. This was endorsed by NYSACHO in 1996. In 2003, Commissioner memorandum promulgated the Commerce Health Emergency Response Data System (HERDS), its GIS, and the communications directory and alerting system as the Official Health Response communications system for health events to local health, hospitals, SEMO and County Emergency Managers. In 2004, NYS Public Health Law (Section 400.10) was amended to require all Article 28, 36, 40 facilities to use the HPN, maintain an available cadre of active users on the system and maintain communications directory information up to date.

3. Capacity and Scope

The Commerce system and the applications within its domains provide both routine and PHP-related information interchange for all regulated health facilities and health related providers of health services in NY (Figure 1). As of January 2006, Commerce supports over 40,000 users and 13,000 organizations. All local health Departments (including NYCDOHMH), regulated health facilities (e.g. hospitals, nursing homes, home health and personal care, clinics) use the system. Licensed practitioners and their practices (physicians, dentists, veterinarians, nurse practitioners) are joining the system at a rate of approximately 500 practitioners per week through the NYSDOH Bureau of Narcotics Enforcement (BNE) prescription registration program. Other PHP partner organizations, NY state agencies and other state health departments in the Northeast region have access to the system. The organizations include practitioner practices (i.e., physician's offices). All health facilities and Local Health Departments (LHDs) in NYS have been trained in the use of the commerce system. Commerce training information for LHDs may be found at:
https://commerce.health.state.ny.us/hin/training/index.html
And for health facilities at:
https://commerce.health.state.ny.us/hpn/training/index.html

4. Core Systems

a. Internal NYSDOH Office Automation (OA) and workflow support. All agency staff (Central Office, Regional Offices and District Offices) utilize Lotus notes (domino) OA systems for internal/external e-mail communication, coordination and electronic support of workflow processes. The system supports mail logs (Bureau Mail Logs, i.e., BMLs), internal discussion databases, agency-wide applications and a workflow processing system, TeamRoom. These OA systems are supported within the agency Disaster Recovery and availability architecture (below) and provide a central platform for Agency communications and workflow required to support any Public Health preparedness (PHP) event.

b. Communications Directory (ComDir). A central integrated repository for electronic role and contact information on the Commerce System. Coordinators appointed by a Public Health Director or CEO of participant organizations maintain their organizations' entries in the directory using web tools. Health facilities are required by NYSDOH regulation to maintain active coordinators and to maintain this information up to date. Roles in the

directory are linked to electronic roles in the workflow process of applications such as HERDS.

- Each organization is therefore empowered to: (1) identify and appropriately assign in the directory those personnel who should function in electronic roles and access applications on commerce; and to (2) specify their own contact (personal and business) information.
- Communications directory entries contain contact information for both non-person (place) locations and person-based roles. Organization's directory coordinators and persons within roles are able to interactively prioritize method and time of contact depending on alert/notification level. Roles are customized by organization type.
- Directory Coordinators have access to tools that facilitate management of their organizations view of the directory. Reports and alerts are periodically sent to coordinators regarding the quality, completeness of their data in the directory, ensuring their entries are up to date.
- Coordinators and users of the *IHANS* (below) are able to create and store customized lists to be used in the alerting process.
- Business rules established in collaboration with partner organizations allow for access to non-personal contact information.
- Utilities for updating contact information, looking up contact information by organization and role and creation of contact lists are available on the commerce system at: https://commerce.health.state.ny.us/hpn/direct/hincomm.html
- A lotus Notes interface to ComDir is also available to NYSDOH executive staff.

c. Integrated Health Alerting and Notification System (IHANS). Sends and receives emergency notifications and informational messages using contact information listed for targeted roles in the Communications Directory. IHANS transmits notifications to individuals via multiple modes, e.g. e-mail, fax, secure web posting and phone call out (cell, pager, office or home phone), depending on level of incident (Appendix 13-B). IHANS is CAP/PHIN compliant. Business rules of use, access and notification level definitions are provided in Appendix 13-B.

- Notification Tool. A web-based commerce application allows for sending electronic notifications. It is available for use only by defined roles at the State, regional and local level. It provides for notification as well as secure posting of content. Business rules for access, use and scope of alerting allowed are provided in Appendix 13-B. Tabular reports are available for monitoring completion and success rates of all notifications types. Redundant IVR systems (Interactive Voice Response) support phone and pager notifications. Phone notifications include confirmation of receipt functions. Notification content can be automatically posted on the NYSDOH HAN using the Notification tool (Appendix 13-B). Notifications can be made open to any commerce user or restricted to specific organizations and roles.

Regional and Local Health Offices are currently being trained and certified in the use of the alert tool. The alerting tool is available at: https://commerce.health.state.ny.us/hpn/cgi-bin/applinks/ams/mainmenu . Notification recipients may be targeted by organization, roles, geographic location and by custom lists from the ComDir. The list creation tool is available at: https://commerce.health.state.ny.us/hpn/direct/hincomm.html.

- Automated Notification functions. IHANS also supports automated notification generation using XML messages. This supports alerting functionality of PHP applications such as HERDS. Thus, HERDS can automatically transmit alert level notifications to all affected health facilities and health jurisdictions when it is activated.
- Testing and response. Local Health has participated in drills and just in time HERDS surveys for public health events (such as vaccine shortage in 2004), where the notification system was used. Response rate was 95% within the time frames allotted for LHDs to respond to the alert/ or information request. Drill involving cascade of Epi-X alert through NYSDOH commerce alert system to 180 recipients across 57 LHDs shoed 88% response rate in less than 30 min and 95% under 1.5 hrs. Statewide activation of HERDS for hospitals (250 facilities) with automated alerting for electronic surveys related to actual public health events (e.g., Vaccine shortage, Threat level Orange, Hurricane Isabel) shows hospital response rates at 90-95% within time allotted for hospitals to respond to information requested through HERDS. First time statewide activation of HERDS for nursing homes (672 facilities) for influenza vaccine inventory/needs survey resulted in 99% response rate. Individual practitioner contact information entered into ComDir through the BNE practitioner recruitment process was used to e-mail (27,000 practitioners) and fax (21,000) notifications to individual practitioners, 85% of the notifications were successfully delivered.

d. Duty Officer System. NYSDOH maintains a duty officer system that provides for call routing and triaging of health emergency calls to appropriate PHP response personnel, including Epidemiology and Wadsworth public health lab. Contact information is provided in Appendix 13-A.

e. Commerce Accounts Management. The Commerce Account Management Unit (CAMU) is responsible for establishment of accounts on the commerce system. An account 'help desk' is available for questions regarding account establishment (Appendix 13-A). Coordinators at health facilities and local health departments have access to electronic tools that allow them to request and monitor accounts for staff in their organizations. Health Facility (HPN) Coordinator account tools are available at:
https://commerce.health.state.ny.us/hpn/help/hpncoord.html.
Local Health Coordinator (HIN) account tools are available at
https://commerce.health.state.ny.us/hin/software/coord.html

LHDs also have an additional account privilege which provides for rapid account creation and account affiliation with their organization for local response partners. In the event of an emergency declaration this local capacity would be used as the mechanism for mass account sign-up for key response partners with immediate need for access critical functions such as health alerting, collaboration and clinic management. Individual licensed practitioners may request commerce accounts for themselves or their practice at the following URL: https://commerce.health.state.ny.us/pub/
BNE reviews these requests as part of the prescription pad registration process and has a helpdesk established to assist practitioners (Appendix 13-A).

f. Health Emergency Response Data System (HERDS). HERDS is part of an application framework that provides a real-time flow of data from the healthcare community to state, local and regional public health. Electronic surveys, surveillance activities or electronic incidents of any nature can be created and deployed on the fly without programming. Surveillance reporting can be activated and intensified as an event proceeds. Health facilities, or other organizations can be activated selectively (individually, by county, by region or statewide) to report via specific forms. Once activated the affected facilities and jurisdictions are automatically alerted using the IHANS. State, regional and local health jurisdictions are able to access the data as soon as it is reported by the facilities. HERDS also has an integrated GIS system which allows state, local and regional health to visualize and analyze the data in relation to key spatial layers. HERDS may be used by local and regional health jurisdictions to deploy surveys and incidents within their jurisdiction (training of regional and local health is slated to begin in Q1 2006). HERDS has been deployed to all hospitals, nursing homes and LHDs in NY. Deployment to home health care and primary care clinics is slated for Q1 2006, and to adult care facilities and public and private schools later in 2006. Details on the HERDS system are provided in Appendix 13-C.
Related HERDS statewide electronic reporting systems currently active for hospitals include:
    - Airborne Infection Isolation Room (AIIR) capacity. A complete, audited inventory of all AIIR room capacity, attributes,
    - Critical Assets Survey. Detailed inventory of surge capacity by bed type, equipment (Vents, PPE, etc), ED capacity, attributes (e.g., decontamination facility, burn center, hyperbaric chambers, trauma center), staff capacities, pharmaceuticals (antibiotics, antidotes), generators, communication capacities (video, data and voice, internet), transportation (ambulance, helipad).
    - Influenza Surveillance. Lab confirmed admissions by age category.
    - Influenza vaccine supply. Dosages available and needed by risk group.
    - Bed Availability. Ongoing survey of adult and pediatric hospital bed availability by bed type (burn, critical care, general medical/surgical) and patients waiting in the ED.

- Patient Locator System. Provides for tracking of event-related patients hospitalized or admitted to the ED.
- Survey of Antibiotic Usage Protocols. Antibiotic control interventions, ordering, rotation, use, hand hygiene procedures, and antibiograms in use for following resistance patterns of organisms in the facility.
- HRSA Baseline Survey. Hospital Capacities and program infrastructure for planning related to response to PHP Events.

The hospital HERDS instance is located at:
https://commerce.health.state.ny.us/aps2/applinks/hospcap/BuildMenu?menu=hospcapMenu

Related HERDS statewide electronic reporting systems currently active for nursing homes include:

- Critical asset survey (similar to hospitals)
- Vaccine supply inventory
- Mental Illness Mental Retardation/Developmental Disability Survey
- Influenza surveillance. Not activated but can be as needed.

The Nursing Home Instance of HERDS is located at:
https://commerce.health.state.ny.us/doh3/applinks/nuhsur/mainMenu.do

The HERDS instance for Local Health Department reporting is operational and in use for specific reporting functions. Local health response capacity surveys cogent to the planning process include

- Performance Metric Survey for 2005
- Public Health Preparedness Final Report 2005
- Public Health Preparedness Survey June 2005.

It is available at:
https://commerce.health.state.ny.us/doh3/applinks/cosur/mainMenu.do

Each of these HERDS instances has the ability to generate an electronic reporting/surveillance or tracking form in real time, in support of any inventory tracking or response needs of a Pandemic influenza event.

g. Health Alert Network (HAN) web site. The HAN web site on commerce is accessible to all commerce users. The site includes:

- A viewer for alerts posted automatically by the IHANS system. Alerts can be posted as open to all users or restricted to specific roles/organizations to whom the alerts are sent.
- Linkages to detailed topical areas of current interest with in depth resources and information on each topic. These include: influenza, SNS, West Nile/arbovirus, SARS, cybersecurity, terrorist agents (chemical, radiological biological), etc.
- Protocols and information resources for response partners

- Digital Photograph submittal. Allows health facilities to submit a digital photograph of a suspect case for review by a medical epidemiologist. Submittal of a photograph initiates an electronic workflow for review of the image and correspondence with the submitter and triggers IHANS to notify State Epidemiology staff and the duty officer system.
  The HAN Web site is located at:
  https://commerce.health.state.ny.us/hpn/hanweb/hanhome.shtml

h. Secure Collaboration. A secure discussion forum system is available on the commerce system. The forum provides for open or access controlled discussion groups to be set up on the fly and controlled by a moderator, allowing members to post files and carry on secure collaborative discussion topics. On activation of an electronic incident (different from a survey or surveillance form) in HERDS a secure access controlled discussion group is automatically created and access granted to the affected facilities and jurisdictions. The discussion forum is available at:
https://commerce.health.state.ny.us/frm/cgi-bin/applinks/forum/WebX

i. Secure file transfer. Files may be securely transmitted between any two commerce users. Files sent by a user are virus scanned and sent to an electronic drop box, the recipient is notified by e-mail on arrival. The sender is notified by e-mail that he recipient has downloaded the file. The utility is available at:
https://commerce.health.state.ny.us/hpn/ctrldocs/genfxr/filetransfer.html

j. Data Analysis and Visualization (DAV).

- Geographical Information System (GIS). Commerce system supports spatial DAV through a web enabled COTS GIS viewer system (ESRI/ARCIMS). Basic geographic layers (e.g., transportation, geo-political boundaries, place locations, water boundaries), heath-response related point locations (e.g., health facility locations) and health data layers are available through the commerce spatial data warehouse (ERSI). The GIS viewer system integrates with HERDS and supports full featured queries and display of any reporting system deployed in HERDS. Hospital assets, vaccine inventory and influenza surveillance functions listed above are available in real time for GIS DAV. This capacity will be available for other HERDS instances for other facilities and LHDs in Q1 of 2006. A GIS capacity also exists for CEDSS and this will be migrated to the generalized GIS viewer in the sale timeframe.
  The HERDS GIS Viewer is located at:
  https://commerce.health.state.ny.us/map/doh2/applinks/hospcap/new/

- Executive DashBoard (EDB). An executive dashboard system is available for just-in-time activation and use in a PHP event. The dashboard provides an integrated portal providing summary visualization of key information systems on health commerce to provide executive decision makers with high-level situational awareness and decision support. It also provides

access to key functions (ComDir, alerting and secure collaboration) from a single web interface. On activation the IHANS system will be used to distribute links to the EDB for key ComDir roles within the affected organizations.

- Report Tables, Charts, Graphs. Event specific report tables, charts and graphs are produced by an automated SAS interface to HERDS and other response data systems. A generalized viewer is available for just-in-time access to this information. On activation, the link to the viewer will be sent to key ComDir roles in affected organizations using the IHANS system. A more generalized system for data visualization and dynamic queries for tables and charts will be available for use in Q1 2006.

5. Disease Surveillance – and Related Commerce Systems

a. Nosocomial Outbreak and Reporting Application (NORA). Provides for general reporting of Nosocomial (i.e., health facility acquired) outbreak incidents at health facilities (nursing homes and hospitals), respiratory (ILI, influenza) being one of the reporting capacities.
The NORA Application is available on the Infection Control Home Page:
https://commerce.health.state.ny.us/hpn/infecontrol/infecontrol.html

b. Electronic Clinical Laboratory Reporting System (ECLRS). Health Commerce has supported a statewide electronic lab reporting system (ECLRS) for (positive) laboratory test results for NYS reportable disease conditions. The system supports electronic submission via web form, file upload of standardized messages and automated transmission using the CDC PHIN standards messaging system (EbXML). Message formats and syntax accepted include HL7 with LOINC/SNOMED vocabulary. Flattened formats are also available for labs who do not yet support the standards. Some 260 labs report Communicable diseases electronically to ECLRS, including national labs such as Quest and Lab Corp. Lab test results received from labs by ECLRS are automatically and electronically routed to the county of jurisdiction. Sixteen reportable diseases are designated as priority notification which triggers an automated phone call 24/7 to the county of jurisdiction alerting them to the case. ECLRS links to the Communicable Disease surveillance system.

c. Communicable Disease Electronic Surveillance System (CDESS). The Health Commerce system has supported a web based statewide electronic communicable disease reporting system since 1996. It provides for case reporting of all NYS reportable disease conditions using an electron version of the DOH-389 core form. Reporting includes various reportable influenza conditions. Electronic reporting of disease-specific supplemental forms is also supported through the system. The system has recently been revised to a patient centric reporting system which supports contact tracing and minimal isolation and quarantine for SARS and (novel virus) pandemic influenza. ECLRS is integrated into the system.

d. Statewide Arbovirus reporting system. Supports mammal, avian and vector surveillance and reporting for WNV, EEE and SLE. Capacity is available for reporting animal/avian influenza.

e. Emergency Department Surveillance System. Supports Electronic Emergency Department Surveillance for Unusual Disease Clusters by Local health Departments. This includes Respiratory Illness with fever.

f. Syndromic Surveillance System. Supports statewide syndromic surveillance for OTC medications, Medicaid prescriptions and for specific regions in the state, ED chief complaint data.

The communicable disease reporting system (CEDSS), ECLRS, arbovirus surveillance, emergency department surveillance systems, related reports and supportive disease reporting information, including influenza may be found at the communicable disease reporting home page: (https://commerce.health.state.ny.us/hin/hinapps/commdis/commdis1.html) or as links from the HPN Data submission page.

6. Medical/Professional Volunteer Database

Licensed medical/dental/veterinary professions joining the commerce system through the BNE outreach efforts may electronically sign-up as volunteers for health events using the volunteer database system available to practitioners on their specific practitioners pages on commerce. The Public Health Preparedness Volunteer Practitioner Database allows NYSDOH to track professions, availability, contact information, attributes (i.e., languages spoken, etc.) of volunteer providers. The IHANS system is used to alert the volunteers in the event of their need for activation. Local health Departments have access to this information within their respective jurisdiction. The practitioner page is available at: https://commerce.health.state.ny.us/hpn/practitioners/practitioners.html

The New York State Department of Public Health Preparedness Volunteer Practitioner Database is a relational data system which stores the volunteer information of licensed medical professionals who have accounts on the Health Provider Network (HPN) eCommerce site, or who have volunteered for the statewide system through the Medical Society of the State of New York (MSSNY) or the New York State Nursing Association (NYSNA). This information is then available for retrieval through a reporting tool on the eCommerce site which allows the searcher to locate medical professionals by profession, county of residence, and additional credentials such as reported specialties or certifications. The two primary components of this system are the volunteer questionnaire and the search application.

The Volunteer Questionnaire application enables licensed health care professionals (with HPN accounts and access) to become a volunteer for deployment in times of emergency. The on-line, web-enabled questionnaire allows users to provide the Department with information such as contact information, home and work

addresses, board certifications/certifications, profession specialties, hospital and agency affiliations, other emergency responder commitments they may have, as well as languages spoken and an estimate of time to respond specific emergency needs. The application provides the volunteer the ability to update or add to their information at any time. This volunteer data storehouse is being expanded to accommodate any new elements as we identify the needs.
The Questionnaire can be accessed directly at:
https://commerce.health.state.ny.us/hpn/cgi-bin/applinks/mpvols/VolunteerQuestionnaire

The volunteer search page enables DOH personnel, local county health personnel and others with special access to search the health care volunteers in the system by profession, county of residence, specialty, board certification, county, and hospital/health care facility association. Information provided in the results screen includes the volunteers profession, address, contact information (phone number, email address, fax or pager number), any hospital affiliation an indication of the volunteer's willingness to assist in an emergency beyond their county. This information is provided in a column report which can be sorted by any column selected, and a button is provided to permit the searcher to download the information to their PC.
The Volunteer Home Search can be accessed directly at:
https://commerce.health.state.ny.us/hpn/cgi-bin/applinks/mpvols/VolunteerHome

7. **NYSDOH Staff Emergency Contact and Volunteer Database**

A database has been established for reporting, tracking and collecting emergency contact and volunteer information for each employee in state DOH and HRI. It is based in the agency enterprise Office automation system, Lotus Notes. The Commissioner has mandated that every employee provides contact information about their work location, job title, contact number(s) and a means to contact them at home directly or through the auspices of an emergency contact. There is a tracking system that is used by the human resources group to make sure that this part of the information is being completed. The information will be used by duly authorized emergency managers to contact employees at work or home in case there is an emergency. It has a reporting tool to produce lists of people matching a variety of characteristics. E-mail alerts can be sent to these lists of people. A second, voluntary part of the application is to collect information about how an employee could volunteer services of special resources and skills they may have. For instance they may be a licensed EMT, or a nurse, or be able to drive a 4-wheeled vehicle. The application is being expanded by using automated workflow to automatically obtain supervisor's approval for release to volunteer duty.

III. Program Planning, Support and Response

A. Command and Control

1. Incident tracking, management and Situation reports.

Communication in form of textual dialogue and Situation reporting regarding incidents is currently maintained through three Lotus Notes BMLs. NYSDOH staffed Health and EMS desks at the State ECC utilize OPSHealth EOps, OPSEMS EOps BMLs for reporting out to agency response staff. These feed the SitRep BML which is used for internal reporting and assembly of internal and external Situation Reports. An Incident Management TeamRoom in Lotus Notes is available to provide a document management tool for DOH Incident Management staff. It will be used for collaboration and SitRep report assembly during PHP Events. It uses the Teamroom template of Lotus Notes to support (1) a repository of reference and plan documents; (2) an document security system to control authoring, reading, review and approval/finalization of reports; (3) organization of emergency staff into electronic workflow teams such as sanitarians, epidemiologists, communicable disease experts, EMS, radiological staff, etc, that can be changed as the emergency develops; (4) grouping of calendars for scheduling activities; and, (5) a means to assign tasks (missions) and track their progress.

2. Inclusion, Cross Jurisdiction and Rapid Commerce Access

Aside from the Scope of Commerce access described above, Tribal Nations within NYS boarders (Appendix 13-D) and external health jurisdictions of NYC, New Jersey, and Connecticut have access accounts on the Commerce system. Several out of state hospitals in close proximity to the NYS border in NYC metro area have commerce accounts and are linked to HERDS. These include the states of New Jersey, Connecticut, and Pennsylvania. A cross jurisdictional communications directory tool is available to provide contact information for the external health jurisdictions.

Key response agencies such NYS Office of Mental Health (OMH) and their associated mental health facilities, Department Agriculture and Markets, Department of Environmental Conservation, State Emergency Management Office (SEMO) have accounts on the Commerce System. A list of participating state agencies is provided in Appendix 13-D. United States DHHS Region II has organizational account access to Commerce.

An electronic pass-through mechanism has been established to allow linkage of NYSDOH commerce users to the NYC Jurisdiction HAN system.

HIN coordinator roles at LHDs are provided with a utility (DOC-L) to rapidly sign-up local response partner organizations and affiliate them with their local health department organization on the commerce system. These would include local fire, law enforcement and schools. The DOC-L sign-up allows local response partners access to health alerts and other ‘open-access’ resources on the commerce system and further enhances the capacity of LHDs to use the IHANS system to alert local

partners within their jurisdiction. The DOC-L system is available through thee normal account tools for LHDs and can be found at:
https://commerce.health.state.ny.us/hin/software/coord.html

- **Action items:**
  - Expand out reach to tribal nations, border states and Canada to recruit additional commerce account users and linkage to HERDS for these jurisdictions.
  - Test and validate existing accounts and contact information for tribes, external jurisdictions and external state/federal agencies.
  - Work with LHDs to implement use of the DOC-L system for sign-up of local response partners

3. Demographic Profiles

Demographic profiles of local communities (including special needs populations and language minorities) required for inclusion in the operational plan can be reported and tracked through the County HERDS Instance [also known as County Surveillance and Reporting System (cosur)]. These can be linked to the HERDS GIS visualization as well as to person-attributes in the professional medical volunteer and NYSDOH volunteer database system.

- **Action items:**
  - Expand LHD PHP survey to include Local Demographic Profile Information reporting.

4. Communications, Notification and Alerting

The NYSDOH Public Health Preparedness unit has overall programmatic responsibility for oversight of the IHANS system. They are responsible for coordination of access rules, use and functional requirements for the system (Notification System business rules are in Appendix 13-B).

The Communications Directory and IHANS System will be used for creating HAN postings and generating related emergency notifications at various levels of urgency during a pandemic. These will be delivered to personnel in key communications directory roles at NYSDOH regional offices, local health departments, hospitals, nursing homes, laboratories, home health care, diagnostic and treatment centers, adult care facilities, tribal nations, external agencies and local response partners as required. Regional offices and local health jurisdictions are able to use the IHANS alert tool to transmit notifications and post HAN alerts within their regions/jurisdictions to the recipient organizations as described above.

The NYSDOH Health Alert BML in Lotus Notes will be the central receipt and warning point for notifications from other external agencies such as the CDC/HAN, CDC/Epi-X, CDC/Other, SEMO, Department of Agriculture and Markets, Department of Environmental Conservation and NYS Office of Homeland Security to

be cascaded through the NYS notification system to local health departments and other organizations. Regional offices and local health departments that have personnel who have been trained and certified in the use of the Alert Tool (Appendix 13-D) will then cascade the notification, and link to the correct HAN posting if applicable, further to their local contacts established in the communications directory.

The IHANS system will handle the processing of ECLRS notifications and will support the emergency notification needs of other Commerce preparedness and response applications, such as HERDS and the professional Medical Volunteer Database.

a. **State DOH Readiness to use Notification System**
In order for the emergency notification system to function most effectively, the following tasks will be accomplished as part of the agency's preparedness planning processes:

➢ **NYSDOH Action items:**

- **Account maintenance**. Assure that all response related agency staff have been granted access to commerce, have active accounts system and know their user IDs and passwords. (For NYSDOH/HRI employees, Commerce user ID and password will be the same as agency enterprise ID and password by February, 2006.)
- **Training and Executive Commitment in use of ComDir**. Additional training and commitment of NYSDOH personnel in use of the ComDir is needed, including appointing Directory Coordinators who are responsible for maintaining up to date emergency contact information and role assignments for their program areas key staff in the Communications Directory. This is essential to supporting immediate contact for emergency notifications sent by executive staff, or by local health departments or NYSDOH regional offices.
- **Reinforcement to External partners**. NYSDOH program areas engaging in continuous reinforcement for the need for active use of Commerce system with healthcare facilities and responder communities, in support of existing regulation requiring that facilities maintain active HPN coordinators and current communications directory contacts.
- **Creation and maintenance of Contact lists**. NYSDOH program to define contact functions/needs and create emergency contact lists using the ComDir list tool. These lists are customized to serve various alerting purposes and recipient groups in pandemic response. These must be completed in advance of, and in preparation for, a pandemic event. List creation responsibility can be delegated to clerical staff.
    - Each of these lists should include HIN and HPN Coordinators in the Editor role so that they may add the appropriate individuals at their own facility to be contacted under the specific circumstances defined for that contact list.
      Contact lists should include:
        - Epidemiology (across all partners) (communicable/infectious disease surveillance and related notifications)

        - Practitioners: physicians, nurses, pharmacies
        - POD, SNS personnel
        - Laboratory administrators; laboratory technical
        - Public/risk communications contacts
        - Other specific state agencies
        - County administrators, incident commanders who should receive all notifications (they could also be added to each of the other lists)
        - Health facilities administrators
    - Facilities on the lists should be directed to assure contact information for their personnel is updated in the communications directory on routine basis.

- **Expansion of access to, and training/certification in the Notification System**. A cadre of NYSDOH officials in the Public Health Preparedness program, in the Division of Epidemiology, and in the Healthcare Preparedness program has been trained on use of the system (Appendix 13-D). However, regional offices need to complete certification and use the alert tool on a routine basis. A larger group of NYSDOH central office staff will need inclusion in training, including Wadsworth Laboratories and additional Office of Health Systems Management, Center for Community Health and Center for Environmental Health.
- **Assure Establish Pre-recorded messages for alert tool.** Work with BHNSM to establish pre-recorded messages for use in the voice component of the alert system for pandemic influenza notifications.
- **Engage CDC to complete Linkage of EpiX to NYSDOH HAN.** Continue to work with CDC/Epi-X and CDC/Other towards completion architecture to support automated standards-based exchange of alerts between Epi-X and NYSDOH Commerce to enable NYSDOH HAN Alert Viewer to cascade alerts to its Commerce user domain.
- **Complete Recruitment of Individual Licensed Health Practitioners to NYSDOH HPN/HAN.** As described below under volunteer rosters partner with the BNE Practitioner signup process for HPN to assure inclusion of licensed practitioners have active HPN account up to date contact information in ComDir to assure frontline healthcare personnel have access to the NYDOH HAN and can receive regular updates and advisories as a PHP event unfolds.
- **Drills**. Drilling of the use of, and response to, the alert system should be conducted regularly with all partners at state, region, LHD and provider levels so that the technical aspects of using the system are understood by important users, and users are well practiced in sending and responding to notifications.

b. **<u>Local Readiness to use Notification System</u>**

In order for the emergency notification system to function most effectively, the following tasks will be accomplished as part of the LHD's preparedness planning processes:

➢ **LHD Action items:**

- **Account Maintenance and Recruitment.** LHDs should assure that all public health preparedness personnel have their own, active Commerce accounts and that addition of local response partners occurs through the DOC-L process.
- **Training.** LHDs should appropriate personnel, i.e., communicable disease, emergency response, and administrative staff attend the ongoing Commerce strategic rollout sessions where they are being provided training on the use of the tools for alerting:
  - the use of the persons emergency contact screens in the communications directory for maintaining 24/7 emergency and business contact information,
  - use of the list tool, for creating predefined contact lists for specific purposes which will help to expedite the alerting process during a pandemic, and finally,
  - use of the notification system itself for creating open or targeted HAN postings and for sending out notifications to specific roles and contact lists.
- **Completion of Alerting Certification Process.** LHDs should complete certification process for use of the alert system and use it on a routine basis.
- **Establish Pre-recorded Messages for Alert Tool.** Work with BHNSM to establish pre-recorded messages for use in the voice component of the alert system for pandemic influenza notifications.

5. **Volunteer Rosters**

The NYSDOH Public Health Preparedness (PHP) unit has overall programmatic responsibility for oversight of the Professional Medical Volunteer and NYSDOH emergency contact and volunteer database system. The Bureau of Narcotics Enforcement (BNE) has program responsibility for recruitment and processing licensed prescribing practitioners to the commerce system. PHP is responsible for recruitment of non-prescribing practitioners (i.e., nurses) to the commerce system. BHNSM is responsible for working with PHP program to migrate the existing commerce volunteer database to compliance with the Emergency System for Advance Registration of Volunteer Health Professionals (ESAR-VHP) Program. The Public Affairs Group (PAG) and PHP are responsible for promotion of use of the commerce system by practitioners for preparedness and volunteer signup.

The Professional Medical Volunteer database will provide a roster of medical volunteers for use by local and State Health for deployment in support of surge. IHANS will provide the alerting functionality to notify volunteers of activation. HERDS forms will be used to track requests for and arrival of volunteer resources at the county or facility level. The Commerce HERDS GIS will enable statewide spatial visualization of medical staff assets deployed as volunteers, facilities/counties with needs and those with resources available. Reporting out to external federal organizations, processes will occur using existing automated messaging systems within Commerce based on CDC PHIN/MS message transport standards and standardized XML message content as required.

In order to assure adequate volunteer capacity to exercise the Informatics infrastructure the agency will engage in the following planning and preparedness activities

- **Action items:**

- **Assure ongoing use of HPN by Individual Licensed Medical Professionals (LMPs).** To assure that LMPs return to and use the HPN on a frequent basis the NYSDOH will engage in a process to add value and interest for LMPs in accessing the HPN. This is essential to assuring account viability and knowledge of use of the HPN. The PAG and PHP units will:
  - Establish an HPN Editorial Board staffed by NYSDOH lead program experts in Wadsworth, Community Health, Environmental Health, Zoonoses Program to identify content of interest to practitioners, post it on the HPN
  - Use the alert system to notify practitioners of new postings on HAN and materials of interest on commerce
  - Provide electronic training courses on the HPN as in pandemic flu preparedness and hot topics such as avian influenza.
  - Develop a process to allow CMEs to be provided for use of the HPN.
- **Promotion of Volunteer Sign Up**. PHP program and BNE will partner with state and local professional societies to promote volunteer sign-up as part of the HPN registration process for prescription pad registration.
- **Maintenance of Up to Date Contact Information for Practitioners in ComDir.** ComDir will be the authoritative source of practitioner contact information. Assurance of accurate and up to date contact information in ComDir will be achieved by assuring practitioners' offices are brought on to HPN as organizations and that they have coordinators who update contact information on behalf of the practice. Utilizing the notification system to deliver alerts, advisories and informational messages describing available content of interest will be an incentive to practitioners to keep their accounts active and contact information up to date. Commerce logins will be modified to require review/update of contact information every 3 months.
- **Program development of HERDS Tracking Forms**. NYSDOH PHP program will work with BHNSM to develop the required HERDS forms for volunteer resource deployment, needs and availability reporting by LHDs and health facilities.

6. Information and Data Sharing and Linkage

HERDS PHP surveys of LHDs demonstrate that they share case information with other LHDs and hospitals. NYSDOH has established regional, cross jurisdictional executive dashboard system on Commerce that was used in support of the Republican National Convention planning and preparedness. The system provides regional access to linked data sets across all data systems within the commerce information domain that relate to support of planning, preparedness, surveillance and response for a PHP event. Data sharing agreements will be implemented to facilitate active statewide and/or regional cross-jurisdiction participation in the dashboard system for data sharing, visualization and linkage in a widespread PHP event. PHP Program, house

counsel and BHNSM have the lead in developing data sharing agreements to address control over rules of data access, data protection, secondary disclosure and assurance multi-lateral data provision. A multi-program workgroup inclusive of epidemiology, Wadsworth Center, public health preparedness, hospital program and house counsel developed the data sharing documents for DOH executive and NYSACHO/LHD review/approval.

- **Action items:**
  - Implement agreements statewide.

7. Real Time Situational Awareness and Decision Suooprt

Real-time data feeds from core PHP commerce systems will be summarized, linked, visualized and made available to executive decision makers, local health officials, health facility incident command and other key response partners through the executive dashboard on the Commerce system. Processes will build on the model used to instantiate and populate the dashboard deployment used in support of the RNC and include decision support. Rich internet architecture, SAS processing and HERDS GIS systems provide the underlying integration and visualization infrastructure for the dashboard.

Data feeds will be linked to the dashboard from existing commerce systems described in Parts I.D.4 and I.D.5 inclusive of:

- Event detection and surveillance systems: ED reporting, syndromic surveillance systems, HERDS surveillance at health facilities, NORA and ECLRS
- Case reporting, contact tracking and isolation: CDESS and HERDS functions supporting isolation and quarantine.
- Outbreak tracking as implemented in HERDS.
- HERDS health facility reporting: attributes, personnel, equipment, supplies, assets, pharmaceutical, vaccine and antivirals, surge, resource needs and availability
- Volunteer rosters.
- Communications Directory.
- HERDS SNS/MERC reporting/tracking.
- Counter Measure Response Administration.
- Avian and mammal surveillance.

Decision support and visualization made available through the dashboard include

- Time series monitoring of event detection information, surveillance, outbreak and case reporting.
- Outbreak tracking of geographic and demographic extent of event.
- Static, time series and spatial display of medical personnel resources, facility resources, vaccine inventory and needs, counter measure administration (as described in Part I).
- Resource materials.

Functionality provided through the dashboard include

- Health alerting
- Secure collaboration

- Webinar access
- Cross jurisdictional communications directory contact lookup

B. Surveillance

1. Routine surveillance and Event detection

- Community-Acquired Influenza. All hospitals in NY state report weekly through HERDS on patients (and associated age demographics) admitted with laboratory-confirmed influenza (Type A, B, or Unspecified). This information is available on commerce as live data feeds to local health, state and regional offices as soon as it is reported by Facilities. HERDS GIS system provides a spatial visualization of these live data feeds. ECLRS clinical lab test results for influenza are also monitored and tracked.

➢ **Action items:**
  - Extend HERDS instances to primary care clinics, home health agencies and adult care facilities to enable routine influenza surveillance at these facility types.

- Facility-Acquired (Nosocomial) Influenza and ILI Outbreaks. Nosocomial-acquired infection outbreaks (including Influenza ILI) are reported on a routine basis by hospitals and long-term care. The data is available in real time via the NORA system on commerce to LHDs, state and regional offices.
- Syndromic Surveillance. Time series and trends in OTC (RODS data) medications and Medicaid prescription data is monitored statewide on an ongoing basis.
- Practitioner Surveillance. The BNE practitioner recruitment process for BNE and medical volunteers can be leveraged to include recruitment of volunteer sentinel physician ILI reporting through the commerce system.
- Avian and Animal Surveillance. The statewide arbovirus reporting system reporting system supports ad hoc reporting of symptoms and deaths of mammals and birds. This system can be adapted for reporting of influenza symptoms/events within these populations. As veterinarians and their offices are being brought onto commerce as part of the BNE prescription pad registration rollout, they will be part of the commerce system and available to report to the NYSDOH reporting system. The NYS Department of Agriculture and Markets operates a separate site for veterinary reporting, the *New York State Animal Incident Notification and Tracking System (NYSAINTS).*
- The NYS Department of Agriculture and Markets (NYSDAM) operates its own site for veterinary reporting, the *New York State Animal Incident Notification and Tracking System (NYSAINTS*) and has been designated as the point of collection for data regarding symptoms and death in mammal and wild bird populations, as well as for poultry flocks. A process for automatically transferring summary data from NYSAINTS to NYSDOH Commerce data visualization tools for posting on the executive dashboard will enable decisions of where intense epidemiological human case surveillance may need to be focused and provide data for analyzing the relationship

between avian and mammal illness and a subsequent human outbreak indicating viral shift.

- NYSDAM are currently users of the NYSDOH IHANS tool for sending alerts and other level notifications. As veterinarians and their offices are being brought onto commerce as part of the BNE prescription pad registration rollout, they will be part of the commerce system and their contact information will be available for updating and for use by the IHANS tool for sending notifications to veterinarians regarding urgent information.

➢ **Action items:**

- Routine sharing, linking and exchange of mammal/avian and human data is a critical component of influenza planning. NYSDOH will need to engage NYSDAM in an agreement for establishing an automated mechanism for exchange of data with NYSDOH health commerce system as related to enabling an integrated dashboard visualization of human and mammal/avian surveillance. Reports, data exchange protocols and data sharing agreements will need to be established with NYSDAM.
- The HPN editorial board for practitioner outreach should include recruitment of volunteer practitioners and office practices in the process of reporting ILI symptoms in patients presenting at their practices.

2. <u>Heightened Surveillance</u>

- HERDS reporting systems deployed to health provider organizations and local health departments can be rapidly modified to change or add fields reported on and the intensity at which reports are made. These may be separately targeted to specific regions of the state and expanded statewide as needed. The IHANS system can rapidly alert the target organizations to begin reporting on new forms and increased frequency or reporting. The reports from these new forms are instantaneously available to state, regional and local health.
- The Dashboard will be updated in real time with any changes made in the HERDS surveillance forms.
- The IHANS system will be used to alert medical practitioners on the commerce HAN system to the increased need for surveillance and reporting on the HPN.

➢ **Action items:**

- Related NYSDOH program areas will need to define and design uniform HERDS electronic reporting forms to support enhanced surveillance across all providers and organizations. The forms must be defined in advance as part of the planning process for pandemic influenza event occurrence.
- Provider and practitioner outreach will be needed to provide guidance and information on enhanced surveillance and reporting needs for pandemic influenza response using the commerce system.

3. <u>Case reporting, Contact tracking and Laboratory Testing</u>

- The CEDSS system supports statewide electronic Influenza case reporting by Local Health departments. CEDSS is integrated with clinical laboratory

reporting of positive test results through ECLRS. The CDESS system allows reports to be initiated at hospitals and made available to the local health department of jurisdiction for official case report processing to the state. The most recent version of CDESS as released to local health departments in January 2006 also supports contact tracking, isolation and quarantine for both novel influenza and SARS.

Public health laboratory testing of human samples. The Wadsworth Center processes specimens for laboratory testing for influenza. Laboratory test requests, specimen accessioning, tracking and results are processed electronically within the Wadsworth Clinical Laboratory Information Management System (CLIMS). The results are reported daily through ECLRS. Test requests for specimens sent to Wadsworth by local health can be can be processed through the CDESS workflow through electronic linkage of the test request form (https://commerce.health.state.ny.us/hpn/hanweb/flu/virussurvrefhistoryform.pdf) to the CEDSS case number.

- **Action items:**
  - Wadsworth CLIMS development unit will be implementing this linkage.

4. Outbreak tracking

The HERDS system is available to support outbreak tracking. Preliminary forms and data elements compatible with CEDSS have been developed and have been deployed for a large outbreak of Cryptosporidiosis during the summer of 2005. The implementation in HERDS will allow rapid entry of abbreviated or summary information on a large scale outbreak, permitting tracking of extent and impact of an outbreak when thousands of cases are emerging. The HERDS system deployed at LHDs will provide an integrated interface for outbreak reporting as well as vaccine/antiviral tracking/requisition, SNS and other key resource report/request functions The HERDS GIS system and the dashboard will display this information as it is reported to the HERDS system.

- **Action items:**
  - NYSDOH program will need to complete definition of outbreak tracking data elements for HERDS and assess requirements for linkage to CEDSS.

C. Public Health and Clinical Laboratories

1. Surge and Laboratory Capacity. Testing capacity, resource needs and current sample processing, request status and backlogs can be assessed through the deployment of HERDS to LRN and clinical BSL2 laboratories in NYS. Data reported by clinical labs can be viewed in real-time via the dashboard and GIS System. The GIS system will enable assessment of best transportation route (nearest lab with available capacity) for samples being re-routed to accommodate surge.

2. Inform Clinicians and Laboratories.

- **Clinicians.** The BNE recruitment process can be leveraged through the HPN executive staff editorial board to inform clinicians of protocols for safe specimen collection and mechanism for submitting specimens to referral laboratories. The practitioners' pages on HPN can point to specimen protocols, diagnosis and treatment information and the IHANS system can be used to notify them as to its availability. A clinician-targeted discussion group can be set up on the commerce secure discussion forum to allow individual practitioners to dialogue with state epidemiology and laboratory staff regarding questions and case specifics.
- **Clinical laboratories.** With maintenance if inclusive and accurate contact information in ComDir for clinical laboratories, the IHANS systems can be used to notify laboratory personnel of availability of training materials and sample protocols for safe collection testing, how and the mechanism for submitting specimens to referral Wadsworth. The commerce access and logging system is also able to confirm that labs have actually accessed the materials.
  - **Action items:**
    - Commerce executive editorial board, Wadsworth Center, and PHP program will need to coordinate with BNE, and task responsible program areas with posting of needed materials on commerce and publishing their availability for labs and clinicians. The concept and availability of a clinician discussion form focused on pandemic influeza or other disease events will need to be promoted to clinicians joining the commerce system.
    - NYSDOH will need to task medical epidemiologists and laboratorians with monitoring a clinician discussion forum on commerce.

D. Countermeasure Response Administration

1. Isolation and Quarantine. Beyond initial epidemiological investigation needs of a pandemic covered in CDESS, the HERDS system as deployed to local health and health facilities statewide can provide general summarization, tracking and reporting of support, service, and monitoring for those affected by community containment measures in healthcare facilities, other residential facilities, homes, community facilities, and other related settings.

- **Action items:**
  - Related NYSDOH program areas will need to design and define HERDS reporting forms for isolation and quarantine.

2. Distribution and Use of Vaccine and Antiviral Medications.

- **Facility Vaccine and antiviral inventory and needs assessment.** Influenza Vaccine Inventories and vaccination needs are currently reported by risk category at hospitals and nursing homes through HERDS. Vaccine inventory, vaccination needs and antiviral medication inventories were also tracked in

HERDS via health facility and local health reporting during the 2005 vaccine shortage. This data is made available through HERDS to State, Regional Offices and local health departments. Home health care and clinics can be included vaccine needs and inventory assessment with deployment of HERDS to these entities.

Reporting and tracking forms for vaccines and antiviral medication resource requirements by priority groups at the facility and local health level will occur via a dedicated instance of HERDS architecture customized to implement a Counter Measure Resource Tracking System (CMRTS). Data reporting streams with the system will flow from targeted health facilities to local health departments to State, allowing each step on the reporting hierarchy to view and submit countermeasure resource needs within jurisdictions.

- **Acquisition, Distribution, Tracking.** Inventory and distribution of counter measure medications and vaccines derived from the SNS, Emergency Response Cache (MERC) and State vaccine bank will be tracked through the CMRTS. Local health departments will be provided access to counter measure resource needs from facilities within their jurisdiction. LHDs will additionally report to the state POD and other response partner priority needs to the state via the CMRTS. Local health will request SNS MERC resources via the CMRTS system and report on inventory utilization within their jurisdiction. Linkage with CDMS data base will provide state and local health with assessment of dosages provided out through PODs. Reports and visualization products from the system will be available to through the dashboard. Automated standards based reporting to Federal agencies (CDC) will occur via standards-based messages and PHNMS transport.

  Advisories regarding availability of vaccine and or antiviral medications will be transmitted to target facilities, PODS and organizations using the IHANS system and NYSDOH HAN.

  - **Action items:**
    - Related NYSDOH program areas and CDMS developer will need to design and define linkage architecture required to integrate CDMS with CMRTS.
    - Related NYSDH program areas will need to complete definitions required for SNS/MERC tracking within CMRTS.

- **Pharmacy Inventories.** BNE has required all pharmacies dispensing controlled substances in NY to have and maintain commerce accounts. Presence of pharmacies en mass on the commerce system presents the opportunity to assess availability vendor inventories of critical medications including antivirals. HERDS instances can be deployed to these organization for this purpose as well as meeting BNE reporting needs for this organization. Communications directory entries for inventory contacts at pharmacy organizations will enable the IHANS system to rapidly contact them during an event.

- **Action items:**
  - Related NYSDOH program areas will need to coordinate with BNE to on outreach and deployment of HERDS and establishment ComDir roles at pharmacies.

- **Safety and Adverse Events Monitoring.** Monitoring and tracking of adverse events will be reported through the CMRTS system by facilities and local health departments. Linkage with CDMS will provide data feeds on adverse events at PODS. Advisories regarding vaccine and or antiviral safety and efficacy will be transmitted to target facilities and organizations using the IHANS system and posted on the NYSDOH HAN.
- **Clinic data management.** Tracking of vaccine administration via local PODs will be through the clinic data management system (CDMS). It is a template based system and options are available both real time electronic forms reporting through commerce and batch electronic reporting through scanned paper forms in cases where POD location or POD flow are not supportive of electronic forms reporting. Just in time printable forms will be deployed to local health departments operating PODs (with CDMS paper forms) via the IHANS system. Adverse events on-site at the PODs are reported via CDMS. Vaccine and or antiviral administration transactions at PODS captured via CDMS will be linked with the CMRTS database and visualized on the executive dashboard and via the commerce GIS system.
  - CDMS inclusion in State POD operations plan is available at: https://commerce.health.state.ny.us/hpn/hanweb/sns/planning/state_pod_eop_ops_attach.pdf
  - POD data communications and IT logistics are available at: https://commerce.health.state.ny.us/hin/bt/deliverables/1_2_c_suggestedequipmentlistpods.xls
  - **Action items:**
    - Related NYSDOH program areas will need to define and integrate plans for operationalizing and deployment of CDMS in local PODs.
    - Data linkages and reporting needs for CDMS will to be defined by related NYSDOH program areas.

E. Risk Communications

1. **Emergency Communications.** The IHANS system has multiple redundant communications systems/pathways (Parts III, IV and V). It will be used transmit emergency notifications and informational messages to the public on a 24/7 basis to specific contact points for cascading to the public sector. Special needs populations and their contact points will be identified through the demographics survey described in Part II.A (Command and Control). These contact points include:
   - Media
   - Community agencies for special populations

- Other Community partners that can rapidly disseminate (cascade) DOH generated alerts and information to the general public, such as reverse 911 dispatch centers.

➢ **Action items:**
  - Communications directory lists will be created for maintaining redundant contact information for these key partners, including cell, satellite, and office phone numbers; fax numbers; radio; and email addresses.
  - NYSDOH will conduct drills with these partners to ensure that the communications channel remains effective.

2. **Training.** Materials for risk communications training will be made available on the Commerce websites to facilitate ongoing or just in time training of PIOs at partner organizations (LHDs, health facilities, etc.). The IHANS system will be used to notify PIOs of postings.
3. **Community Resources.** The NYSDOH public website will function as part of the Disaster Recovery and high availability architecture (Part V). Public information bulletins and notifications will also be posted on the public web. Summary data regarding outbreak status will be derived from the integrated dashboard system, processed and made available as unauthenticated, but secure and certified links to the commerce system from the public web site. Data provided to the public will include:
   - Patient locator. Public access to Probable location of de-identified event patients admitted to Health facilities, isolation facilities reporting via HERDS patient locator.
   - Number of hospital admissions for ILI – updated daily
   - Number of ED visits for ILI – updated daily
   - Number of deaths from ILI – reported daily
   - Number of confirmed pandemic influenza cases – reported weekly
   - Number of newly hospitalized pandemic cases – reported daily
   - Number of newly quarantined pandemic cases – reported daily
   - Number of hospitals with pandemic cases – reported daily
   - Total number of pandemic cases -- reported daily

   Data will also be visualized on maps, including:
   - Spread of ILI cases across the state – updated daily
   - Counties that have imposed quarantines for ILI – updated daily
   - Hospitals that have confirmed pandemic cases – updated daily
   - Areas of travel restrictions – updated daily

F. Healthcare and Emergency Response

1. **Statewide Situational awareness of Healthcare status.** The HERDS system (Part II.D) currently tracks and reports an exhaustive inventory of hospital assets, pharmaceuticals, surge, supplies, durable equipment, bed availability. Influenza Vaccine needs are also being tracked. The Nursing Home HERDS surveys track similar information, including bed availability. Electronic reporting for event patient traffic; staff and equipment, material resource requirements/availability;

staff vaccination status and other needed information can be rapidly added to reporting from existing HERDS templates and forms. Electronic Incidents activated in HERDS allow for the reporting of resources needs and available for incident command allocation between facilities. Similar HERDS reporting forms can be deployed to additional facility types as required. Home Health, Adult Homes and Primary Care Clinics are will be added to the HERDS system.

- **Action items:**
  - Activate existing critical asset reporting forms for Nursing homes statewide.
  - Implement HERDS instances for Home Health Care and Primary Care Clinics and deploy critical assets survey.

2. **Facility-based Isolation and Infection Control.** The statewide inventory of Hospital AIIR room capacity is available through the HERDS system. Complementary HERDS reporting forms can be established to track and mass balance occupancy and availability. Hospital staff vaccination status, PPE inventory and training status is also available through HERDS Critical Asset survey and HRSA Baseline surveys. Long term care infection control, isolation and cohorting capacities are assessed in the Nursing Home Critical asset survey. Nosocomial-acquired influenza in hospitals and Nursing homes is tracked in the NORA system.
3. **Event Patient Tracking.** Event patients presenting at health facilities can be reported through the HERDS patient locator system which includes support for PCR and EMS Triage Tags. A public facing query component of the patient locator allows for de-identified look-up of facility locations of probable matches for families searching for hospitalized relatives. The public facing look-up query is accessed by a link from the public web site to an unauthenticated, yet secure certified link to the commerce system.

IV. Alerting and Notification Infrastructure

A. Interactive Voice Response (IVR) Systems. The IHANS system and HERDS alerts utilize phone-based notifications. Health alerting and notification protocols are in Appendix VI.B. On activation the HERDS system can use the IHANS system to initiate alerting of affected facilities and jurisdictions. Phone (land, cell, satellite, pager) notification infrastructure is supported by two IVR systems one at the NYSDOH ESP main site and one at its DR site (800 North Pearl St.). Each supports outbound text to speech for outbound notification messages and keypad acknowledgement of receipt of notifications. Each IVR supports 48 lines. Five lines are available to support the Duty Officer Call in system these can be rapidly expended in an emergency. The IVR systems also have the capacity to support call centers and in-bound phone surveys, however, program requirements for implementation have not been developed.

B. Mass Fax. The IHANS system and HERDS supports fax notifications/alerting. The fax appliance and capacity is upgraded to two digital appliances: one at the main site at ESP and one at the DR site, each with 24 lines, for a total capacity

of 48 lines. Lotus Notes has a separate capacity (8 lines) for routine bulk faxing.

C. BlackBerry. NYSDOH supports Blackberry wireless communications for key NYSDOH executive and PHP response staff. There are currently 129 users. DOH owns 150 licenses and the current servers can support up to 2000 licenses. Redundant Blackberry servers are available at both the main ESP computer site and the DR site.

D. HF Radio. The HF radio system, located at 800 North Pearl, covers the frequency range from 3 to 30 MHz and uses Single Sideband (SSB) Suppressed Carrier and, at reduced power, Amplitude Modulation with carrier. It is a Mobat model 500E with four power output settings ranging from about 100 watts to 500 watts peak envelope power (PEP). The radio is Automatic Link Establishment (ALE) capable. The radio is also equipped with digital mode communication using an external laptop computer and an MFJ –1275 soundcard interface. Software in the laptop allows use of the radio for RTTY (radio teletype) and weak signal PSK-31 (phase shift keying) modes. The antenna system consists of two separately fed radiators mounted on the roof of the building at 800 North Pearl. One antenna is a B&W broadband folded dipole 90 feet in length and up about 15 feet from the roof surface. The other radiator is an east-west longwire about 280 feet in length supported 40 feet above the roof, tuned with an SGC model 235 automatic antenna tuner. At the radio, an antenna switch allows selection of either antenna as well as a dummy load for "off air" testing. The system is currently licensed to operate on 14 channels, each 6 kHz wide. CDC has obtained the frequencies for use with CDC related operations. The radio is also equipped to operate on amateur radio frequencies from the 80-meter band up through the 10-meter band using SSB, RTTY and PSK-31. The last CDC sponsored SSB (voice) testing was completed in the summer of 2005. Digital mode communication has been tested on the amateur frequencies with PSK-31 working especially well in weak signal conditions.

E. Satellite Phone. The NYSDOH maintains a Health Operations Center collocated with the DR site at 800 North Pearl Street Menands, NY. The DR site includes a fixed satellite base station (GlobalStar Network) for alternate voice communications using satellite phone.

V. Distance Learning and Remote Meeting/Collaboration

A. Video Conference (VC). All 57 LHDs and 4 regional Offices have video conference capacity. Some 100 hospitals report VC capacity. Hospital video conference capacity and contact information is available through the HERDS critical asset system. NYSDOH supports two video conference bridges: one at the main computer room site and one at the DR site at 800 North Pearl Street. Depending on the resolution desired, each bridge supports 15 ISDN connections at 384k or 23 ISDN connections at 256k. The bridges may be cascaded to double the number of concurrent sessions. The bridges can also be cascaded with external commercial providers to add additional sessions to a conference. Internal to

NYSDOH Healthcom Network there each bridge also supports and additional capacity for 12 IP connections at 384k. Contact and scheduling information for Conferences is provided in Appendix VI.A. External organizations wishing to connect to NYSDOH VC sessions must register for certification using the contact information in Appendix VI.A. The communications capacity established to support VC for LHDs is also outfitted equipment necessary to provide a non-internet-based method to access commerce should the internet be unavailable.

B. Webinar. The Health Commerce supports a secure Webinar system, using the commerce login and encryption. Scheduling and contact information is provided in Appendix VI.A. It is licensed for 50 concurrent users. Use of the system requires Internet Explorer 5.0 and up with Java Virtual Machine (JVM) version 1.3 and higher. Users are advised to pretest their desktop using the 'Set-Up' tab on the webinar page. The webinar system may be found at: https://commerce.health.state.ny.us/picturetalk/login.jsp.

C. Secure Discussion Forum (SDF). The SDF capacity, described previously, provides for mechanism for rapid, ad hoc, establishment of secure collaboration and discussion on any topic, avoiding the use of e-mail over the internet, which is not secure. Forums can be assigned to specific commerce users who may independently control access to their collaboration sessions. Users granted access to a discussion forum may post files and engage in text based discussions and commentary. A forum user may also choose to be notified by e-mail when ever a new item is added to their forum. Contact information on set up of SDF is available on request to hinweb@health.state.ny.us and via the HAN Coordinator (Appendix 13-A).

VI. Availability and Disaster Recovery

A. Problem Detection and Response. NYSDOH maintains a 24/7 on-call roster for technology infrastructure. The contact point for the roster is available per the contact information in Appendix VI.A. The roster provides first tier response for technical problems and health events such as HERDS activation. First tier has specific protocols for problem diagnosis, response and escalation/activation of 2nd and 3rd tier responses. Critical hosts (e.g., commerce and lotus notes servers and related network gear) are monitored by automated processes. Automated message alerts are sent to On-call and technology-related incident command roles on host failure or availability problem. Depending on severity, alerts are also sent to an independent monitoring and call down service which also manually initiates call down to appropriate 2nd and 3rd tier incident commands. Technology Infrastructure on-call roster is also copied on health alert notifications from hinweb@health.state.ny.us.

B. Accessibility.

1. **Commerce and Notes Access.** The commerce system is accessible using IP/web protocol via multiple diverse pathways. Multiple Production Internet provider services are dual homed and available at alternate sites (primary at

the ESP and DR at 800 North Pearl). Commerce is also accessible via the NYeNet interconnect as well as via direct ISDN dial-up. LHDs have acquired alternate (secondary) means of internet service and have the capacity to use the VC ISDN communications to access commerce. The communications capacity established to support VC for LHDs is also outfitted with multiplexor, router and switches to allow the VC ISDN communications as a mechanism for non-internet-based access to the commerce system. Each hospital's capacity for potential alternate data communications with Commerce is reported and available for review through the HERDS Critical Asset survey. All NYSDOH Regional Offices have alternate communications capacity to (re) establish network connectivity to NYSDOH internal network communications to the DR site and commerce and Lotus notes. VPN access is also available to NYSDOH staff for remote access to the DR site.

2. **Availability and Disaster Recovery**. NYSDOH has a high availability and offsite Disaster Recovery infrastructure, disaster recovery plan. The Health Operations Center (HOC) site co-located with the DR site.

Automated Bureau Mail Log (BML) Notification Contacts and Roles

Organization domains with e-mail alert submittal access to Health Alert BML warning point. (healthalert@health.state.ny.us)	• NYS Office of Homeland Security (inclusive of CyberSecurity) • US Centers for Disease Control • NYC Dept of Health and Mental Hygiene
NYSDOH Roles alerted to Health Alert posting to Health Alert BML	• Director, Public Health Preparedness and on-call team • Incident Commander for Bioterrorism (or biological event) • Incident Commander for Chemical Radiation event • Director, Wadsworth Public Health Laboratory • State Epidemiologist • Director, Communicable Disease Control • Director, Environmental Health • HAN Coordinator • BHNSM Informatics Response Lead • Director, OHSM • Public Affairs Group • Director, Hospital Preparedness • HERDS Incident Commander • Director, Hospital Program • Director, Office of Science and Public Health
NYSDOH roles able to activate HAN posting requests through hinweb BML (hinweb@health.state.ny.us)	• Executive Deputy Commissioner of Health • Director, Public Health Preparedness and on-call team • Incident Commander for Bioterrorism (or Biologic event) • Incident Commander for Chemical Radiation event • Director, Wadsworth Public Health Laboratory • State Epidemiologist • Director, Communicable Disease Control • Director, Environmental Health • PHP Bioterrorism Epidemiologist • Medical Director, Immunization

	Program • Director, Hospital Preparedness • HERDS Incident Commander • Director, Hospital Program • Director, Office of Science and Public Health
NYSDOH Roles Notified on Submittal of Digital Photograph from HAN	• Incident Commander for Bioterrorism (or Biologic event) • State epidemiologist • Director, Communicable Disease Control and related on-call team • Infection Control • Director, Office of Science and Public Health • PHP Bioterrorism Epidemiologist • Regional Epidemiology • State Veterinarian • BHNSM Incidence Response • HAN Coordinator

NYSDOH Notification System: Business Rules for Local Health Departments, Hospitals, NYSACHO, and other IHANS Partner Organizations

The purpose of the NYSDOH Notification System is to provide Agencies with a capacity for exchanging routine and emergency communications with our partners in public health and healthcare preparedness and response, that is:

- Integrated and comprehensive
- Accurate and immediate
- In alignment with the grant requirements of CDC and work being done by other States and major cities across the nation.

NYSDOH has a single, NYSDOH enterprise-wide notification system developed under the CDC Public Health Preparedness grant. The integrated notification system is a powerful application that will utilize contact information stored within the HIN/HPN/HAN communications directory to send critical health alerts and advisories to key individuals in roles or key office locations during emergency situations. NYSDOH will use this system to notify Local Health Departments (LHDs), hospitals, other healthcare providers and emergency response organizations of healthcare alerts, advisories and updating information. NYSDOH will always inform the LHDs which other provider organizations and emergency response organizations have also received a given notification.

The notification system will also integrate with all NYSDOH applications such as HERDS that generate automated alerts to users. It also will provide a simple user interface to generate manual alerts.

Overview:

- Currently: The notification system permits different level of notification depending on the urgency of the message. For the most urgent alerts, the system will be programmed to attempt to contact these key individuals by multiple means defined in the Person's Emergency Contact Information, with the intelligence to know if an answering machine, busy or no answer has been reached. The system has the ability to track the progress of a phone alert/advisory and record the number of positive contacts it has made during the course of the alert and provide a confirmation report for the sender. The system can generate both text and voice messages that may easily be created by the sender. Details of the incident will not be contained in the notification message.
- Attachments to emails sent by NYSDOH users only (not available for faxes at this time) are allowed for Informational level messages only, for which the context is not considered highly secure or sensitive.
- The system also has the capability of posting the notification messages on the HAN homepage. Postings may be made public or for targeted audience. Public postings are viewable by the entire Commerce system audience, whereas target audience postings are only viewable by the recipients of the notification.

Notifications sent by LHDs (and in the future, hospitals, other healthcare providers and other emergency responders) may only be posted as targeted, i.e., they will only be visible on the HAN viewer of postings to the recipient audience they originally targeted for the emergency notification, i.e., they are private notifications. NYSDOH executive staff members at the regional and central offices are automatically notified of notifications sent by LHDs in order to review them in a timely way and take requisite action, e.g., notify the a larger segment of the public health, healthcare, or emergency responder communities. NYSDOH users are able to post a notification for "public" or targeted audience views, based on need.

- A Commerce system user, or their HPN/HIN Coordinators may enter and prioritize that individual's emergency and business hours contact information in the Communications Directory by using the Directory's Person's Update Tool. This priority contact information will be used in transmitting Alert, High Advisories or Drill level messages only.
- The system has the ability to track the progress of a given alert/advisory notification as well as track and record the number of positive contacts made by the system during the course of the notification and provide a confirmation report for the sender. The system can generate text to speech, text and pre-recorded voice messages that may easily be created by the sender. Numeric pagers, emails and faxes are also available modes for sending notifications.
- Where secure or sensitive information is concerned, the notification message simply will instruct the recipient to go to the HAN homepage for detailed information about the incident.

NYSDOH will cover the costs of faxes and phone calls incurred when designated state or local health officials use of the notification system.

Levels of Notification:

NYSDOH will adapt CDC terminology and standard formats and vocabularies for notifications – (please note: User-prioritized emergency day and after hours contact information is used for alerts, high advisories, and drills.):

1. Alert – highest priority and urgency level of emergency notification; warrants immediate action or attention by the recipient. The Recipient's Emergency Contact Information will be used in this type of notification. An acknowledgement of receipt by each of the intended recipients is required for phone mode of contact; and is tracked by the notification software. Multiple contact modes may, and should be utilized. HAN postings may be created, of either a public or private (only viewable by targeted audience) audience type, for this level of notification.
2. High Advisory – high priority does not warrant immediate action but recipients should be aware and may wish to take preparatory action. The Recipient's Emergency Contact Information will be used in this type of alert notification. An acknowledgement of receipt by each of the intended recipients is required for phone mode of contact; and is tracked by the notification software. Multiple contact modes may, and should be utilized .HAN postings may be created, of

either a public or private (only viewable by targeted audience) audience type, for this level of notification.

3. Advisory – provides situational awareness and does not require immediate action. The Recipient's Business Contact Information will be used, such as office phone, fax, email, but not pagers or cell phones. Recipients will receive phone notification for advisories only during normal business hours and only to their business phone; emails or faxes sent as part of an advisory may be accessed by the Recipient at any time. HAN postings may be created, of either a public or private (only viewable by targeted audience) audience type, for this level of notification.
4. Update – provides updated information regarding an ongoing incident or situation; not intended to require immediate action. If more immediate action is necessary, a new alert, or high advisory level notification should be issued. This notification type would only have access to publicly available office or contact information. Only the organization issuing the notification will be allowed to send an update to that notification. HAN postings may be created, of either a public or private (only viewable by targeted audience) audience type, for this level of notification.
5. Informational (available to NYSDOH users only) – provides timely information for normal business. Informational level notifications will be sent to recipients only during normal business hours and will be sent only by fax and email. HAN viewer postings are not available for informational messages. A single document may be attached to an email sent via an informational notification; however attachments to fax are not available at this time.

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Protocols for using the Notification System

Local Health Departments, Hospitals, NYSACHO, and other IHANS Partner Organizations will be granted access to using the Emergency Notification System for sending notifications in accord with the following conditions:

- **Statewide -- only to** recipients at **like** organizations or facilities (i.e., of the same organization type, LHD to LHD, hospital to hospital), or to the **appropriate program contacts** in the NYSDOH (central and regional offices).
- **Jurisdictional -- to** recipients may be at all other organizations or facilities types that are **within their geographic jurisdiction only**, i.e., LHD may send a notification only to hospitals that operate within their county's jurisdiction**.**

Access to the Notification System for Sending Messages: Communications Directory role based access to use the Notification System is available o nly to the roles of LHD Public Health Director or Commissioner of Health, and Director, NYSDOH Regional Offices. At NYSDOH central or regional offices and at local health departments, other individuals may be designated as users, and granted access to the system; but this request must be submitted using the online request for access form, or by request directly to the application owner (Bob Burhans). Users have the authority to send alerts, advisories, and updates as well as review confirmation reports and determine the recipient group. If

HAN posting is used as part of the notification, authorized users have the ability to designate whether the notification is open view, i.e., all HPN users may view the posting on the HAN viewer or targeted view, i.e., only recipients of the notification will be able to view the message on the HAN viewer.

1. Sending Notifications – Access to sending notifications will be limited to senior officials and their designees at the NYSDOH central and regional offices, LHD Commissioners and Public Health Directors or other appropriate senior officials and their designees that have participated in the Notification System Certification Training.. Notifications sent by NYSDOH Regional offices, LHDs, , and other IHANS Partner Organizations (in the future) will automatically generate a simultaneous notification to NYSDOH Central Office executive staff and appropriate regional offices.

2. LHDs, and other IHANS Partner Organizations currently using a local alerting system, should integrate the use of their system with the policies of NYSDOH programs and CDC PHIN standards regarding notification protocols, and coordinate closely with the NYSDOH.

Receiving Alerts or Advisory from the Notification System

LHD staff provided with alert receiving devices such as cell phone and pager, will have these devices available to them at all times. Alerts involving LHDs will fully utilize the alert devices being provided to key staff with CDC Public Health Preparedness funding. Key staff includes:

- LHD Commissioner or Public Health Director
- Deputy or Chief Administrator
- Communicable Disease Director
- Environmental Health Director
- Public Health Preparedness – Primary Contact
- Laboratory Director (where applicable)
- Additional roles such as the HERDS roles or other key roles as appropriate to the emergency situation

LHDs, Hospitals, NYSACHO, and other IHANS Partner Organizations Responsibilities

1. Follow the instructions issued in the notification, for example go to the HAN for more information, or log on to HERDS to monitor the progress of hospitals in your counties that were activated to enter data.
2. User organizations will be responsible for contacting their target group of organizations either by using the NYSDOH Notification System tool on Commerce or through their own mechanisms, e.g., local radio network or call down lists, for healthcare provider or first responder organizations that have not entered, or permitted their contact information to be entered by into the NYSDOH Communications Directory.

Rules for Notification Prioritization

Rules have been specified for queuing notification messages through the system sent based on the urgency level of notification and jurisdiction of sender in order to ensure

that the highest priority notifications are apportioned the system resources appropriate for the urgency level of their notification. These queuing rules are currently being built into the system but are not available at this time.

1. Priority by Notification Urgency levels:
   Alert> High Advisory>Advisory>Update>Informational, i.e., Alerts are sent before High Advisories, High Advisories before Advisories

2. Priority by Organization type within an equivalent urgency level:
   State DOH >Regional>State Agency>LHD>Facility
   - Within State NYSDOH: first in, first out
   - Within region: by population order [vertical down/up > horizontal (area)]
   - Across State Agencies: emergency management, surveillance and response agencies, followed by others across LHDs: By population: NY City> LHD alliances>highly populated counties, etc. [vertical down/up > horizontal (area)]
   - Across facilities: associations>networks>opcerts>individual PFIs (vertical down/up > horizontal)
   -

3. Across Organization types and Priority levels:
   Alert>Advisory>Update>Informational, etc., i.e., LHD Alert goes out before a State level Advisory

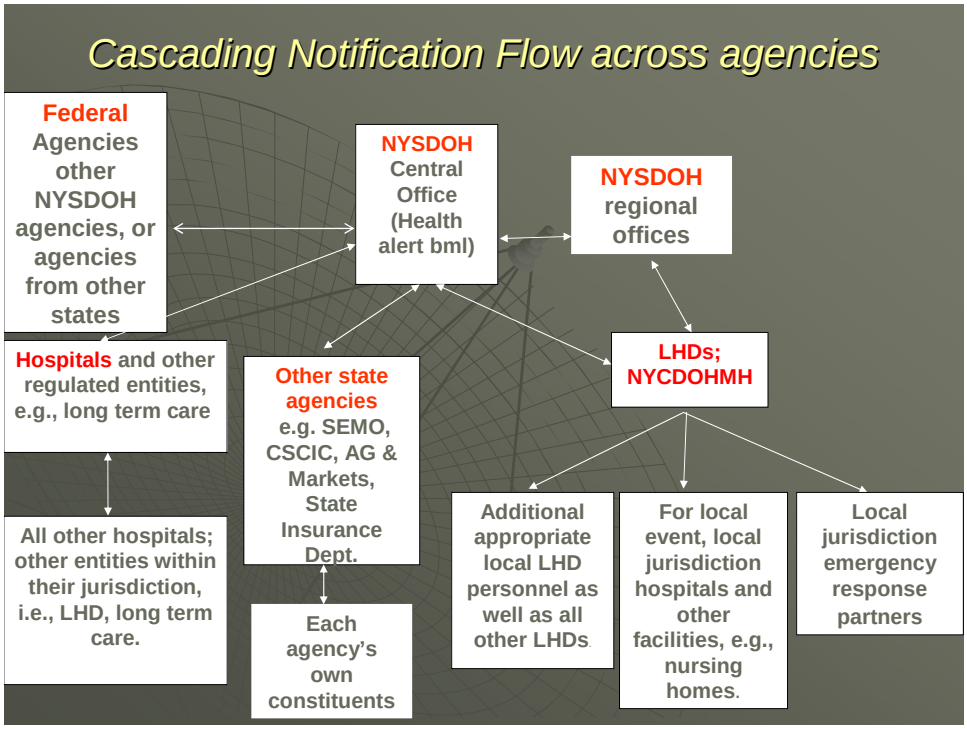
Cascading Notifications: Preserving jurisdictional and organizational authority -- Protocols for NYSDOH Reviewing and Sending Notifications.

Multiple agencies share alerts with the NYSDOH and multiple programs within NYSDOH may wish to send notifications. Prior to disseminating these alerts to local health agencies, healthcare providers and other emergency responders through the HIN/HPN/HAN, some may require review. Following national protocols for emergency notifications and communications, each agency preserves the right to notify its own constituents, e.g., NYSDOH notification regarding foodborne illness is sent to Department of Agriculture and Markets, central office staff who in turn will determine appropriateness of notification, appropriate recipient group, and ultimately will send out the notification using the Notification System tool on Commerce. NYSDOH does not supercede the authority of Ag & Markets by directly notifying their constituent group.

1. NYSDOH asks the CDC and other agencies such as OPS to forward their alerts, advisories and updates to the Lotus Notes HealthAlert BML. When a message is received in the bml by an approved agency, specific individuals in the NYSDOH Office of Public Health Preparedness and BHNSM Health Alert Network receive a text message on their cell phones indicating there is a message in the bml needing review for possible posting and sending notifications to NYSDOH constituents.
   These reviewers may need additional approval of NYSDOH Executive staff, or they may post the message on the HAN and send out a notification using the

notification system tool on Commerce to post and send the notification themselves. As a backup, they may forward the notification to HINWeb. BHNSM staff members are available on a 24/7 basis to follow programmatic instructions on posting and/or sending the message.

2. NYSDOH program area generated notifications: program area staff within NYSDOH that are designated as valid senders of notifications may send a request for posting and sending a notification to HINWEB.
3. Agreements on format of the message to be posted and mode of receipt must be obtained with submitting agencies.
4. Organizations issuing an original notification are the only valid senders for any subsequent updates to that notification.



Homeland Security Threat Levels

Although the Federal government may choose to elevate the National Homeland Security threat level, NYS may not change the NYS Homeland Security threat level in conjunction with Federal activity. It is important, however, to notify NYSDOH partners in public health preparedness of the status of the State's decision with respect to Federal action. Therefore, an advisory message will be sent by NYSDOH to its constituents notifying them of this status. A guide booklet has been distributed to all the counties outlining the set of actions each constituent group should take under each specific threat level. This set of standard activities is available on the HAN under the "Public Health Preparedness and Planning" subsection of the "Public Health Preparedness and Response to Bioterrorism" homepage and will accompany any alert or advisory that changes the State threat level.

Other Future System Development:

- A system for deleting notifications posted erroneously on the HAN viewer page and notifying recipients of the error is in development.
- A system for allowing multiple support or reference documents to be posted on the HAN viewer page is planned.

Overview of the Health Emergency Response Data System (HERDS) – Hospital Instance

1. Definition

The Health Emergency Response Data System (HERDS) is an integrated, secure, web-based system for reporting emergency preparedness, surveillance and detection, and emergency response data. It is the product of a unique collaboration between the healthcare and public health sectors to improve and facilitate planning and response to emergencies that might endanger the lives of the public. The system involves hospitals (and other health facilities), state and local health departments in an electronic incident command-based process to all officials involved in emergency response with online, real time data describing available beds, medical supplies, personnel, number, status and immediate care needs of ill or injured persons, along with other urgent information to facilitate a rapid and effective emergency response. It is a web-based reporting system that is integrated with the NYSDOH health commerce system. It is able to support reporting for multiple, simultaneous disease, mass trauma or other public health emergency events across the state, and allows for survey or resource reporting instruments/forms to be customized based on the nature of the emergency, and then rapidly deployed to select hospitals dynamically, without programming or database modification. There are components in HERDS that allow for the tracking of patients by EMS personnel as they are moved to and between hospitals, and a patient locator function designed to interface with a publicly available query for an individual to search for a loved one that may have been brought to an emergency room or hospitalized during an emergency event. Geographic and statistical analysis tools, which are part of the system make it possible for individual hospitals or regional hospital groupings to evaluate what are appropriate inventory levels of critical resources to have on hand for large scale incidents and maintain inventories at those level. The system currently is in use with hospitals, Local Health Departments(LHDs) and nursing homes statewide. Clinics Home Health Agencies are targeted as the next health provider group to be brought into HERDS incident reporting (expected 1st quarter 2006), which will enhance the ability to analyze and use surge capacity during an emergency. Discussion are ongoing regarding future use of HERDS instances by other states in the northeast for hospital emergency response, surveillance and planning instruments, as well as for NYS laboratories and psychiatric hospitals. HERDS is the winner of the Council of State Governments 2004 Innovation Award for the Northeast Region and was cited in the RAND Report on Exemplary Practices in Public Health Preparedness[1].

2. Background

In response to the events of September 11, 2001, GNYHA and its member hospitals found that significant time was spent responding to data requests from government agencies about patients, supplies, staffing, and other matters critical to emergency management and response. In order to ensure that data-gathering activities are effective and efficient in the event of a future disaster, GNYHA, through its Emergency Preparedness Coordinating Council (EPCC), identified key data elements that might be collected during an emergency, which fall into the following three categories:

[1] Tanielian et al 2005. Exemplary Practices in Public Health Preparedness. Report to US DHHS Assistant Secretary for Public Health Emergency Preparedness. By RAND Center for Domestic and International Health Security. Santa Monica, CA 54 pages.

- Surge Capacity - beds, staffing, supplies, pharmaceuticals, antidotes, blood, antibiotics; needs and availability.
- Event-related Data - numbers of patients seen, waiting to be seen, unidentified, or deceased.
- Patient Locator System - a database containing the name, gender, and date of service for patients seen in area hospitals as a result of a disaster.

In December 2001, GNYHA approached the New York State Health Department (NYSDOH) to develop a statewide system and to deploy it on its secure, Commerce (Health Provider Network (HPN)) internet portal where it could integrate with the Commerce established architecture for communications and data sharing, including its communications directory (contact information), automated notification system, secure discussion forum, disease reporting, and GIS and SAS analyses capacities. JCAHO cited this collaborative effort in 2003 publication on Strategies for Creating and Sustaining Community-wide Emergency preparedness.

HERDS was first deployed the NY City Metro Area July 2, 2002 as a preparedness measure for the holiday weekend. In May 2003, the NY State Commissioner of Health Promulgated the HERDS system, NYSDOH HAN and Communications Directory as the official health response system for NY State. HERDS is currently in routine use by public health and health facilities statewide(Table one), including: drills in Metro NY City and rural areas of Upstate NY using scenarios ranging from Bioterrorism to SARS Outbreak and support of SNS activation; statewide preparedness surveys for elevated threat levels and potential natural disasters; statewide capacity assessments such as Airborne Infection Isolation Rooms; ongoing Epidemiological surveillance such as flu surveillance; public health resource assessment such as in response to the vaccine shortage. It provided cross-jurisdictional linkage between states to support the Republican National Convention (RNC) in NY City, August 2004. It was also used extensively in support of the 2004-2005 Influenza vaccine shortage, collecting statewide vaccine needs, staff vaccination status of very hospital in the state (235 facilities) within 24 hours. During the RNC the regional response portal established on the NYS Health commerce system used its HERDS interface to provide event decision makers with real-time access to the complete asset inventory (blood supplies, pharmaceutical inventory, vents, beds, surge, staff, PPE, data communications equipment, ED traffic, patient loading/Bed availability, event patient symptoms) of every hospital in the state at their fingertips.

HERDS supports the incident command process, providing a vertical and horizontal hierarchical flow of information from health facilities to local/regional and state health jurisdictions, and other response partners. Administrator roles create, store and deploy electronic surveys, surveillance and incident response actions within their respective jurisdictions without programming. Electronic roles within the workflow process and affected jurisdictions are automatically alerted on activation. Roles and contact information are derived from a central directory, maintained by participant organizations.

Components of the system – (see Table One for HERDS usage to date)

- **Surveys –** capability for rapidly deployed, immediate ad hoc surveys of targeted resources and assets, such as pharmaceutical, AIIR and influenza vaccine, power and food supplies.
- **Emergency Incidents** -- Provides a generalized mechanism for creation and deployment of web based electronic reporting forms to health facilities during emergency incidents. Creation of a customized reporting form with edit checks requires no programming. Forms can be stored as templates and modified as required over time for reuse. Many different forms may be deployed simultaneously to different groups of facilities for different emergencies as needed.

- **Ongoing surveillance** -- specialized weekly surveys such as bed availability summary, pediatric influenza related cases, Emergency department unusual disease clusters.
- **Facility Assets --** assets tracking for specialty unit capacities (burn, trauma, emergency department, decontamination, and airborne infection isolation), equipment (generators, fuel supplies), surge capacities, certified beds across continuum of health facility types (e.g. hospitals, nursing homes) for biannual reporting and update of these assets to serve as basis of hospital selection and patient triage during incidents.
- **Patient Locator --** Patient locator system that allows hospitals to enter information about patients presenting during an incident and allows for queries by the public to search and find potential matches for their missing loved ones among the patients reported by hospitals. Also provides the capacity for EMS and hospital tracking of patient location and transfer.
- **Secure discussion capability –** provides for real time discussion, incident update information dissemination and resource brokering by incident command with facilities during incidents.
- **Automated alerting and notification** -- key personnel at hospitals, state and local health organizations are notified via fax, email, office or cell phone that there is an officially declared emergency incident and which hospitals in which regions are being asked to report their resource utilization, needs and availabilities to the Incident command officers at their emergency operations center.
- **Reports and Analysis available to support resource inventory planning and resource tracking/transfer** –
  - Real time tabular incident command reports project the status of resources across the system of hospitals activated for the incident and enable incident commanders to hone in on sites of clear deficiencies or clear availabilities of critical resources during the event
  - HERDS maps data to a full featured, web-based GIS application, developed to provide spatial analysis of data reported through HERDS. Query tool allows users in the field to access the HERDS incident database in real time to create maps of their choosing including critical resources availabilities and needs reported during an incident or surveillance conducted in HERDS over time.
    - Can pin-point the location of the event, view aerial photography of the nature of the location, e.g. residential, industrial, business.
    - Hospital attributes can be extracted from the system such as burn units, trauma centers, emergency departments and displayed within defined areas such as 1 mile radius, 2 miles etc.
    - Map layers upon which HERDS resource data can be superimposed:
      - Geopolitical boundaries (county, MCD, zip, etc.)
      - Disease or environmental surveillance data
      - Public buildings
      - Population census
      - Transportation
      - Health facilities
      - Orthometric photos
- XSL extensions have been adopted to allow delivery of multiple format options for downloading reports including Excel spread sheets, html.

- The HERDS system can map its reports to database tables for linkage and view to other existing applications.
- Archived reports show historic data entered into repeating surveys and allow for trending.
- SAS internet integration allows for real time graphical display of snapshots of resource groups, specific resources and facility reporting or trends in a given resource or across resource groups over the course of event.

3. System Access

HERDS is an access restricted application available on the secure NYS Commerce (HPN) website which authorized users may log in to using standard, commercial, internet browsers. All state and local health departments, all NYS hospitals, and several out-of-state hospitals in New Jersey and Connecticut have users that are currently accessing HERDS.

- **Roles based access:** Access to the HERDS application itself is via role-based assignment in the NYSDOH Communications Directory**.** Roles in the communications directory reflecting hospital or public health functional titles, as well as specific HERDS functional roles are automatically linked to various application roles that have varying levels of access to HERDS for read only, read/write, and available report and analysis views that are restricted by jurisdictional differences and differences in an individual's incident command responsibility. Each organization determines which of their personnel are appropriate to serve in each role, and by virtue of entering the name, contact information, and user ID of those individuals to those roles, they are given immediate and appropriate access to HERDS. Each role is clearly defined to assist organizations in proper assignment of their personnel.

- **Emergency Access:** special, organization-level Commerce accounts are available to organizations for use of HERDS during emergencies, under the extenuating circumstance where no regular HERDS or Commerce users with active accounts are available to access the system. These "Emergency Response Accounts (ERA)" are only active during emergencies and are held in secure location within the facility for use only in the circumstance described above. Unlike normal user accounts, these accounts are deactivated immediately and passwords are changed at the end of the event.

4. Technical Architecture

HERDS is fully compliant with PHIN and NHII information technology functions and standards. HERDS is assembled using J2EE compliant and database agnostic, enhanced, NYS developed, transportable general application tools (modules/classes): foundation classes and beans containing transportable business logic controlling environmental information, logging and permission/access and application level classes that control presentation and application functionality under the BEA application server environment, as well as class for role based application access control via our NYSDOH Communications Directory. These classes are extensively used in NYSDOH application development for exchange and sharing of critical data between healthcare provider, state and local health departments. The GIS system is based on a COTS product, ArcIMS.

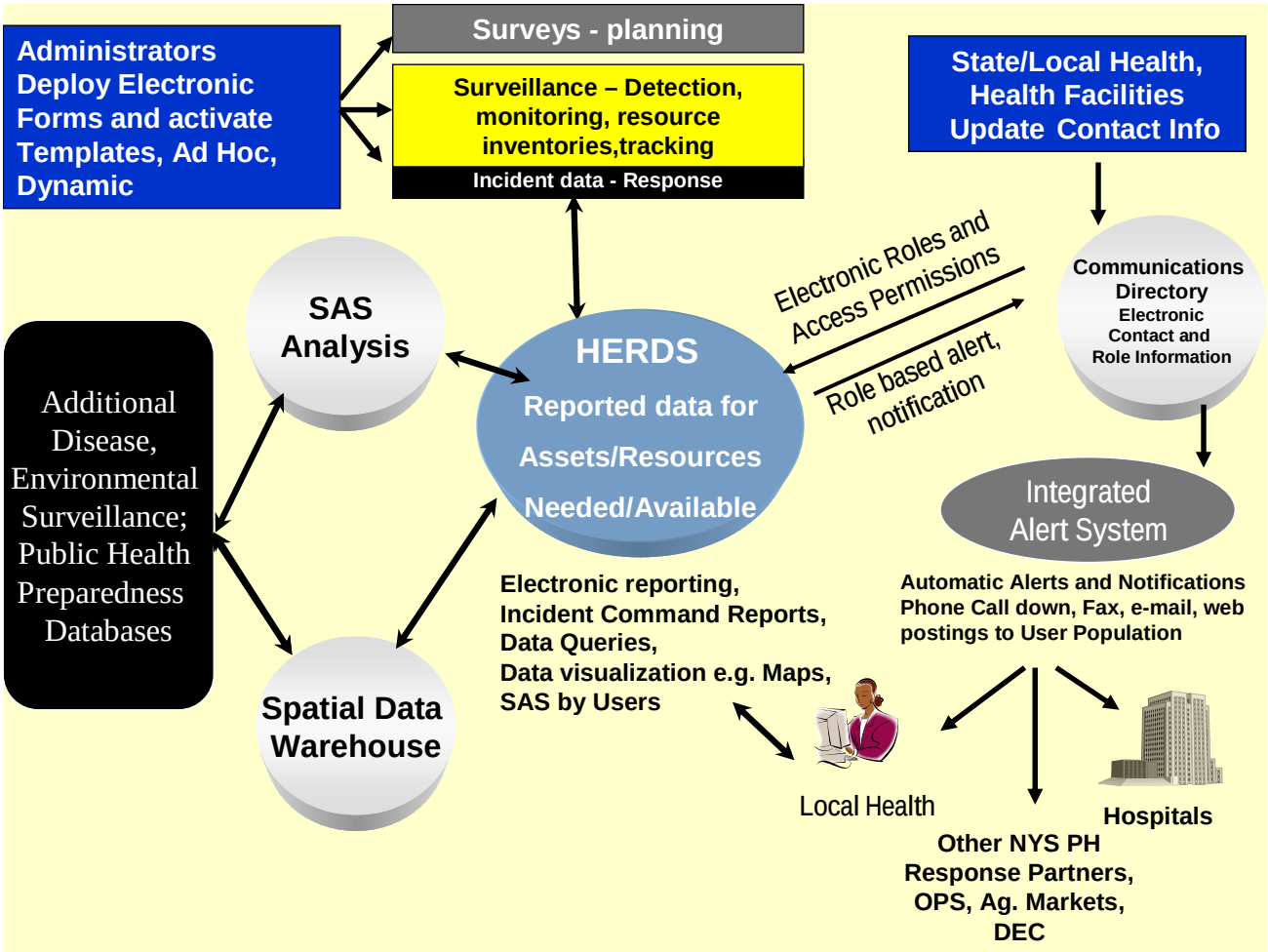
Appendix 13-C

Table 1. Summary of HERDS Use To date with Hospitals.

Type	Date	Name/Lead Organization	Description	Location / Geographic extent of Activation	Number Local Health Departments Involved	Number Hospitals Involved
Announced or Planned Drills	11/14/02	GNYHA Drill	Dirty Bomb Scenario	NY City Metro Area	14	60
	6/3/03	GNYHA Drill	SmallPox Scenario	NY City Metro Area	12	75
	8/6/03	Iroquois Healthcare Consortium Drill	Toxic Spill Scenario	Central NYS	3	7
	8/17/03	Champlain Valley Physicians Hospital Drill	Nerve Agent Scenario	Northeastern Region	6	11
	11/12/03	GNYHA Drill	SARS Scenario	NY City Metro Area	18	65
	4/10/04	West Point Military Academy Drill	Trauma/Chemical Exposure Scenario	Hudson Valley Region	1	4
	4/19/04-4/22/04	NY State/SNS Exercise	Tularemia Agent Scenario	NY City Metro Area	10	31
	5/18/04	GNYHA Drill	Subway Explosions/ trauma Scenario	NY City Metro Area	10	65
	6/6/04	Albany Co.	SNS Exercise	Albany - Capital District Region	1	4
	6/10/04-6/11/04	Erie Co./Western NY	SNS Exercise	Buffalo - Western Region	8	33
	5/26/05	Nassau/Suffolk Co.	RRC Drill	Long Island	2	25
	6/7/05	Westchester Co./ Hudson Valley	RRC Drill	Hudson Valley Region	7	27
	9/21/05	Monroe Co. / Finger Lakes Region	Train car rupture release of chemical agent	Rochester - Central Region	9	17
	10/13/05	Erie Co. / Western Region	POD Drill	Buffalo – Western Region	8	26
Emergency Response	8/14/03-8/15/03	NY State Emergency Declaration / Response to NorthEast Blackout	NorthEast Blackout	Statewide	57	117
Public Health Response	10/04 – 12/04	NY State / Response to vaccine shortage	Three Vaccine And Antiviral Surveys	Statewide	57	224
	8/10/04	NY State / Response to Blood Shortage	Blood Shortage Survey	NY City Metro Area	10	123
Surveillance Preparedness	10/6/03 to Current	NY State/ Weekly Bed Availability	Weekly Bed Availability	Statewide	57	231
	8/28/04 – 9/03/04	NY State/ Republican National Convention	RNC	NYCity Region	10	123
	10/4/04 to 5/2/05 10/13/05 to current	NY State / Influenza Surveillance	Surveillance of lab confirmed Influenza Hospitalizations	Statewide	57	237
	12/18/03 – 5/3/04	NY State / Pediatric Influenza Surveillance	Pediatric Influenza related deaths	Statewide	57	192
Survey Assets/Capacity	10/04/02	NY State / HRSA Preparedness Needs Assessment	HRSA Needs Assessment	Statewide	53	149
	6/17/05	NY State / HRSA Baseline Survey		Statewide	57	234
	12/15/02	NY State/ Airborne Infection Isolation Room (AIIR) Capacity	Airborne Infection Isolation Room Capacity	Statewide	57	224
	8/10/04	NY State / Critical Asset Survey	Critical Asset Survey	Statewide	57	269
Survey Preparedness	02/24/03	NY State /Threat Level Orange.	Sodium Thiosulfate Inventory	Statewide	57	194
	5/20/03	NY State / Preparedness Survey	Pharmaceutical Inventory	Statewide	57	210
	9/16/03	NY State / Hurricane Preparedness	Hurricane Isabel	Statewide	57	225
	12/10/03	NY State / Influenza Preparedness	Influenza Vaccine Inventory	Statewide	57	213

	12/30/03	NY State / Threat Level Orange	Threat Level Orange	Statewide	57	239
	6/7/04	NY State / Health care workforce	Home Health Care Worker Strike	NY City Metro Area	10	120
Survey Public Health Assessment	10/04	Infection Control Survey	Infection Control Survey	Statewide	57	224
	6/3/05	Antibiotic Usage Protocols		Statewide	57	224

Figure One: HERDS Data Flow Summary



Commerce Access and Alert System Readiness

Table 1. Tribal Nations on the Health Commerce System.

- Tuscarora Health Center - Hospital (extension clinic)
- Oneida Indian Nation – Diagnostic and Treatment Center
- Seneca Nation of Indians Health Department
- Seneca Nation of Indians Environmental Protection Dept
- Shinnecock Health Center - Hospital (extension clinic)
- St Regis Mohawk Health Services - Diagnostic and Treatment Center
- St Regis Mohawk Health Services Medical Clinic - Clinical Laboratory
- St. Regis Mohawk Pharmacy
- St. Regis Mohawk Tribe Health Center
- Unkechaug Indian Nation Health Services

Table 2. Participating NYS Agencies in the NYS Health Commerce System as listed in ComDir

Org ID	Organization Name	County	Region
2578	NYS Attorney General - Medicaid Fraud Control Unit	New York	Metropolitan Area Regional Office - New York City
9620	NYS Board of Elections	Albany	Capital District Regional Office
6967	NYS Commission of Correction	Albany	Capital District Regional Office
5463	NYS Department of Agriculture and Markets	Albany	Capital District Regional Office
18623	NYS Department of Corrections Health Services	Albany	Capital District Regional Office
5344	NYS Department of Environmental Conservation	Albany	Capital District Regional Office
6965	NYS Department of Family Assistance	Albany	Capital District Regional Office
8110	NYS Emergency Management Office	Albany	Capital District Regional Office
8097	NYS Insurance Department	Albany	Capital District Regional Office
3917	NYS Office of Alcoholism and Substance Abuse Services	Albany	Capital District Regional Office
8030	NYS Office of Cyber Security & Critical Infrastructure Coordination	Albany	Capital District Regional Office
2253	NYS Office of Mental Health	Albany	Capital District Regional Office
6260	NYS Office of Temporary and Disablity Assistance	Albany	Capital District Regional Office
6238	NYS Workers' Compensation Board	Albany	Capital District Regional Office
6280	New York State Office of Public Security	New York	Metropolitan Area Regional Office - New York City
6066	Office of Mental Retardation and Developmental Disabilities	Albany	Capital District Regional Office
5430	Office of the State Comptroller	Albany	Capital District Regional Office

Table 3. Organizations trained/certified in the use of the Commerce alert tool.

Jurisdiction (Central office program, LHD, regional office)	Total number trained in jurisdiction
Central Office Programs	
Public Health Preparedness	11
Division of Epidemiology	3
OHSM	4
Regional Offices	
WRO	3
CDRO	9
MARO	4
CNYRO	22
LHDs	
Albany	4
Clinton	1
Dutchess	6
Erie	5
Franklin	1
Fulton	2
Greene	1
Hamilton	2
Jefferson	3
Lewis	2
Monroe	4
Montgomery	2
Nassau	3
Oneida	1
Onondaga	5
Orange	5

Jurisdiction (Central office program, LHD, regional office)	Total number trained in jurisdiction
Oswego	2
Otsego	1
Rensselaer	2
Rockland	4
Saratoga	3
Schenectady	3
Schoharie	2
St. Lawrence	2
Suffolk	3
Sullivan	
Ulster	2
Warren	2
Washington	2
Westchester	6