

STATE OF FLORIDA

***Action Plan for Pandemic Influenza
Florida Department of Health***

September 2001

**Division of Disease Control
Florida Department of Health**

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Action Plan for Pandemic Influenza

I. PURPOSE

The purpose of this plan is to provide a guide for the Florida Department of Health (DOH) and other state and local agencies on detecting and responding to an influenza pandemic. The plan describes disease surveillance, emergency management, vaccine and antivirals delivery, laboratory and communications activities, as well as how multiple agencies should work together to respond to such an event.

If confronted with pandemic influenza, the priorities of the Department of Health will be to assure the continuation and delivery of essential public health services while providing assistance to meet emergency needs of the affected population. This plan establishes the framework and guidelines for ensuring that an effective system of health and medically related emergency management is in place to contain adverse outcomes of an influenza pandemic.

This strategic plan represents an evolutionary process that must be periodically reviewed and updated to ensure that its assumptions, resources, priorities, and plans are consistent with current knowledge and changing infrastructure. In addition, in the event of a pandemic, the judgments of the public health leadership, based on the epidemiology of the virus and the extent of population infection, may alter or override anticipated strategies and plans.

II. POLICIES

1. Employees will have a working knowledge of this plan and identified roles.
2. Appropriate information will be shared with the public.
3. Information will be shared with health and medical organizations, physicians and emergency management agencies at appropriate levels.
4. Department resources will be utilized before requesting assistance from other sources.
5. The department will adhere to appropriate medical ethics/practice when allocating scarce resources.

III. BACKGROUND

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

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secondary bacterial infections and more aggressive supportive care. They both, however, were associated with high rates of morbidity and social disruption.

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

Pandemic influenza has the potential of affecting all elements of society. A large number of cases will add burden to hospitals and other health care systems already stressed with the normal day to day crises. Mortality is usually markedly increased. Health and medical personnel as well as other infrastructure workers, i.e. law enforcement, fire, public works, will not be immune. The effects on our communities could be staggering.

IV. ASSUMPTIONS

For planning purposes, the worst-case scenario is being projected. If the situation does not fully develop, the response can be adjusted. The following assumptions are made:

1. Pandemic influenza has occurred every 11 to 39 years in the 20th century. Based on history of the 20th century, we would expect an influenza pandemic within the next few years.
2. A novel influenza virus strain will likely emerge in a country other than the United States, but a novel strain could emerge first in the U.S.
3. With the emergence of a novel influenza virus strain, it is likely that all persons will need two doses of vaccine to achieve optimal antibody response.
4. Although there may be isolated pockets, the pandemic could affect all geographic areas of the state.
5. The emergency response element will require the substantial interaction of agencies beyond health departments.
6. Approximately 29 percent of the 16 million permanent residents have had flu vaccinations, which will not necessarily provide the specific type of protection needed.
7. Florida's permanent residents, migrant workers and tourists will create a potential vaccination target population of nearly double that of the permanent resident population.
8. When the pandemic occurs, vaccines and medicines will be in short supply and will have to be allocated on a priority basis.
9. According to Centers for Disease Control and Prevention (CDC) guidelines, total vaccine supply will be under the control of the federal government, with states receiving an allotment.
10. The federal government has assumed responsibility for devising a liability program for vaccine manufacturers and persons administering the vaccine.
11. Response to the demand for services will require non-standard approaches, including:
 - Discharge of all but critically ill hospital patients
 - Expansion of hospital "capacity" by using all available space and "less than code compliance beds"
 - Increase of patient ratio to hospital staff
 - Recruitment of volunteers who can provide custodial services under the general supervision of health and medical workers
 - Relaxation of practitioner licensure requirements as deemed appropriate, and
 - Utilization of general purpose and special needs shelters as temporary health facilities.

12. The federal government has assumed responsibility for developing “generic” guidelines and information templates, including fact sheets, triage and treatment of influenza patients protocols, and guidelines for the distribution and use of antiviral agents, that can be modified at the state and local level. Until these are developed and available, the state has the responsibility to develop such guidelines for its citizens.
13. Secondary bacterial infections following influenza illness may stress antibiotic supplies.

In addition to the above assumptions, it is felt that there may be as little as one to six months warning before outbreaks begin in the U.S., if the pandemic emerges outside this country. The pandemic may occur during time periods not normally associated with our usual influenza season, and the pandemic strain may attack categories of people at different rates than that which normally occurs during the influenza seasons.

V. RESPONSIBILITIES

1. DOH will seek an Executive Order from the Governor in order to activate state resources for the pandemic response.
2. DOH will assume the role of Incident Command at the State Emergency Operations Center (SOEC) and provide leadership to other state agencies and resources in the management of this type of event.
3. DOH will assist in the identification and provision of resources needed by local health and medical systems to cope with the emergency.
4. The Division of Disease Control will identify and coordinate planning with key stakeholders through the Pandemic Influenza Coordinating Committee made up of representatives from Epidemiology, Immunization, Pharmacy, state laboratories, DOH General Counsel, DOH Communications, Emergency Operations, and county health departments (CHD). Other key stakeholders for involvement in planning include the Department of Community Affairs, Division of Emergency Management, as well as the Agency for Health Care Administration and the Departments of Education and Corrections.
5. The county health departments will be responsible for developing local plans to assess existing health care resources, coordinate responses with key stakeholders in the counties, and develop contingencies for anticipated shortages of essential services. The CHDs will also be responsible for promoting inter-pandemic routine influenza and pneumococcal vaccination to designated high-risk groups.
6. The Bureau of Laboratories will provide expertise in early identification of the presence and type of influenza.
7. The Bureau of Epidemiology will conduct surveillance of influenza and related disease activity and provide continuous information of its course and impact upon the population.
8. The DOH Office of Communications will keep the public informed during all phases of the pandemic.

VI. CONCEPT OF OPERATIONS

The Secretary of the Department of Health shall assume command for directing the response to the influenza pandemic. At the point where resources outside the Department of Health are needed, or the basic infrastructure of the state is being affected as a result of the pandemic, the assistance of the Department of Community Affairs, Division of Emergency Management shall be sought. Activation of the Division of Emergency Management's State Emergency Operations Center will be requested through the Emergency Coordination Officer (ECO), designee for the Secretary.

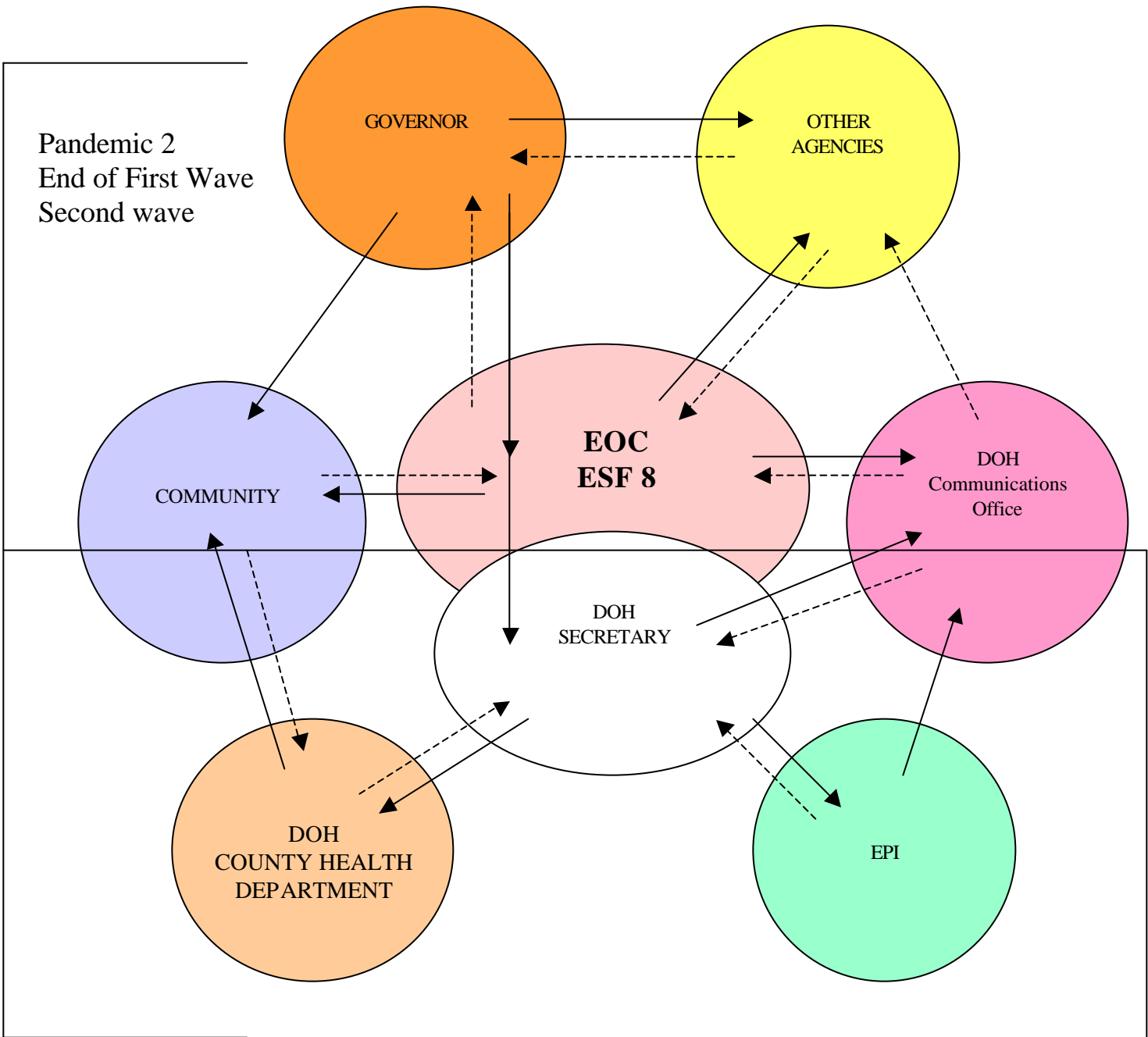
The emergency response system of the Division of Emergency Management shall be utilized to track missions, acquire resources, document costs and coordinate response activities among the major state agencies. The general methods of operation shall be undertaken as provided in this plan and the state's Comprehensive Emergency Management Plan. In responding to the pandemic, the Department of Health will have lead responsibility and the Division of Emergency Management will have a support role.

If emergency powers of the state are needed, the Division of Emergency Management, in consultation with the Department of Health, shall draft a Governor's Executive Order declaring that a state of emergency exists and specifying the emergency powers that are necessary or appropriate to cope with the emergency. If it appears that significant expenditures will be required to respond to this emergency, the Division of Emergency Management may recommend, and the Governor may request, a presidential disaster declaration. If granted, this declaration will make federal funding available on a matching reimbursement basis.

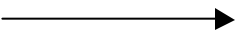
In addition to public health, the general strategy of the plan is to protect the infrastructure so to ensure that the health and medical community, as well as government and business, will continue to function. This decision will require allocation and redirection of scarce resources toward those who are needed to maintain optimal functioning and health of society.

The following diagram, Notification and Information Flow, is a visual depiction of the concept of operations and major shareholders, from the *Interpandemic* through the *Pandemic Over* phases. The DOH will continue day-to-day operations, making recommendations to aid in controlling the spread of influenza during the *Interpandemic* through *Pandemic 1* periods. As part of its daily activities, DOH also has primary responsibility for keeping the public informed of disease outbreaks (shareholders below the horizontal line). In the event of a pandemic and when the capacity of the DOH to carry out these functions has been reached, the Division of Emergency Management will be called in to assist in reducing morbidity, disability, hospitalization, mortality, economic loss and disruption of normal daily life. The DEM will also assist in establishing a communications structure to help ensure that accurate and consistent information is given (shareholders above and below the horizontal line).

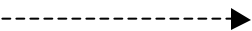
Notification and Information Flow *Interpandemic through Pandemic Over Phases*



Directives



Reporting



InterPandemic
Novel Virus Alert
Pandemic 1
Pandemic Over

VII. PANDEMIC PHASE CHART

National pandemic planning is divided into several phases, from early identification of a novel virus to resolution of pandemic cycling. These phases are determined and announced by the CDC in collaboration with the World Health Organization (WHO). The Florida plan follows the same phase guidelines, prescribing necessary activities and identifying responsible parties by pandemic phase. These declared and defined phases will help ensure a consistent and coordinated response by national, state, and local agencies in the event of an influenza pandemic event. The intent is for all activities listed in this document to be initiated during the assigned pandemic phase. Some activities will, of course, continue during subsequent phases.

The pandemic phase table below is based on the phases outlined in the World Health Organization's *"Influenza Pandemic Preparedness Plan: The Role of WHO and Guidelines for National and Regional Planning,"* Geneva, Switzerland, April 1999.

PANDEMIC PHASE	DEFINITION
WHO Phase 0, Level 0	<i>Interpandemic Period.</i> No indication of any new virus types.
WHO Phase 0, Level 1	<i>Interpandemic Period.</i> New influenza strain in a human.
WHO Phase 0, Level 2	<i>Novel Virus Alert.</i> Human infection confirmed in 2 or more humans.
WHO Phase 0, Level 3	<i>Human Transmission Confirmed.</i> Person-to-person spread in the general population.
WHO Phase 1	<i>Onset of Pandemic.</i> Several outbreaks in at least one country with spread to other countries.
WHO Phase 2	<i>Pandemic.</i> Outbreaks and epidemics in multiple countries, spreading region by region across the world.
WHO Phase 3	<i>End of First Wave.</i> Activity in initially affected regions/countries stopped; outbreaks still occurring elsewhere.
WHO Phase 4	<i>Second Wave.</i> Second outbreak in a region, 3-9 months after initial wave.
WHO Phase 5	<i>Post Pandemic.</i> Pandemic period over, likely 2-3 years after onset; immunity to new virus type is widespread in the population.

VIII. PANDEMIC PHASES

A. INTER-PANDEMIC PERIOD ----- WHO PHASE 0, LEVELS 0-1

During “normal” influenza seasons, influenza viruses antigenically related to recently circulating viruses continue to evolve and cause disease during annual epidemics at the level of local community, state, nation or continent. Activities during this phase are directed at maintaining the infrastructure of health and medical resources and strengthening those resources where possible to prepare for years of higher incidence of influenza. Activities that should be pursued, or considered, and will ultimately enhance the health system’s ability to handle a pandemic influenza are as follows:

Surveillance

- Expand existing sentinel physicians’ and laboratory (virologic) influenza surveillance to include 1 physician per 250,000 population
- Institute an aberration detection system for early influenza and influenza-like illness (ILI) detection
- Consider feasibility and usefulness of new surveillance systems for school and work place absenteeism and expand existing systems
- Develop an unusual and unexplained deaths surveillance system in collaboration with medical examiners
- Develop an influenza and pneumonia related mortality surveillance system to monitor causes
- Explore a possible hospital-based beds-filled and beds-available surveillance system
- Emphasize reporting of outbreaks in nursing homes and other institutional settings
- Consider a hospital-based respiratory illness surveillance system

Emergency Operations

- Maintain a state of preparedness

Vaccine Delivery

- Maintain a system for distribution of vaccines through the Bureau of Immunization (BOI) and Central Pharmacy
- Develop a strategic plan through BOI and county health departments (CHDs) for management of vaccine delivery and administration during a pandemic
- Develop a plan for prioritized administration of influenza vaccine in the event of inadequate supplies through BOI
- Identify existing vaccine storage capability through BOI and CHDs
- Identify partners through the CHDs, such as local hospitals, that will assist with short-term emergency storage needs
- Identify partners in the community through the CHDs that can assist with mass immunizations
- Promote increased influenza and pneumococcal vaccine coverage levels in traditional high risk groups through state and local associations with assistance from BOI, CHDs, Office of Communications, and Program Marketing
- Encourage the Florida Medical Society and other physicians and health care professionals’ associations and organizations to promote increased influenza and pneumococcal vaccine coverage levels in high risk groups
- Ensure that adverse events following vaccination are reported through the Vaccine Adverse Events Reporting System (VAERS)

Communications

- Provide educational information on pandemic influenza and the significance of such an event on the state
- Establish a means of rapid communication between CHDs and local health providers
- Develop templates for news releases in event of pandemic
- Maintain an updated list of CHD media representatives

B. NOVEL VIRUS ALERT----- WHO PHASE 0, LEVEL 2

(Novel virus detected in two or more humans. Little or no immunity in the general population. Potential, but not inevitable, precursor to pandemic)

Surveillance

- Continue routine and enhanced sentinel surveillance
- Ensure representative and unusual virus isolates are sent to CDC for appropriate testing
- Obtain appropriate reagents from CDC to detect and identify the novel virus strain
- Implement the two mortality surveillance systems developed in Levels 0-1
- Consider a possible contact and report system with military hospitals for alert of influenza illness in traveling military personnel

Emergency Operations

- Continue Preparedness Stage
- Identify and develop communication with agencies required to mobilize in the event of pandemic activity

Vaccine Delivery

- Follow progress in development of effective vaccine for new virus
- Prepare Central Pharmacy for quick distribution of the vaccine, once available
- Determine other possible community vaccine receiving sites

Communications

- Prepare public information releases in conjunction with Epidemiology
- Prepare and keep ready a list of potential questions, with available answers
- Review and revise, as needed, drafts of public information documents
- Meet with media representatives to devise a plan for collaborative dissemination of regular, relevant and timely surveillance data
- Post weekly summary data to the Bureau of Epidemiology web site for CHD information dissemination
- Review current electronic and telecommunications capabilities for rapidly compiling, transmitting and disseminating data

C. PANDEMIC ALERT----- WHO PHASE 0, LEVEL 3

(Novel virus demonstrates sustained person-to-person transmission and causes multiple cases in same geographic area)

Surveillance

- Assemble pandemic Coordinating Committee to review existing activities and evaluate possible enhanced surveillance plans
- Activate the mortality surveillance systems, if not already in operation.
- Activate, if feasible, the hospital beds-filled and beds-available surveillance
- Explore a possible international port ILI surveillance system
- Develop contingency plans for procurement of laboratory equipment, supplies and additional staff

Emergency Operations

- Alert State Coordinating Officer of the pending event
- Begin identifying response personnel, equipment and supplies
- Initiate plans for formation of a statewide health taskforce

Vaccine Delivery

- Ship vaccine to CHDs and other community sites
- Begin active coordination through the BOI and CHDs with local partners to establish massive immunization efforts directed at high priority target groups

Communications

- Establish contact with CHD media representatives
- Communicate to the community, through the CHDs, the influenza disease potential and local plan of action
- Provide updates for the public in conjunction with the surveillance and vaccine delivery functions.

D. PANDEMIC 1----- WHO PHASE 1

(Novel virus causing unusually high rates of morbidity and mortality in widespread geographic areas)

Surveillance

- Continue the *Interpandemic* and *Novel Virus Alert* surveillance activities
- Verify that surveillance systems have been activated and facilities are reporting
- Analyze incoming patient data to determine populations at greatest risk
- Consider special studies to characterize the outbreak
- Implement, if feasible and useful, the international port ILI surveillance system

Emergency Operations

- Continue Preparedness Stage
- Plan for activation of the State Emergency Operations Center (EOC) for those ESFs needed for pandemic response
- Monitor actions of partners within DOH

Vaccine Delivery

- Continue to distribute (BOI and Central Pharmacy) and control use of vaccines and antivirals
- Modify distribution system (BOI and Central Pharmacy) as needed to ensure optimal coverage

Communications

- Frequently update the situation to state media with guidance and specification of actions as well as information to public
- Report collected data to all participating facilities and post information on web site and via Health Alert Network

E. PANDEMIC 2 ---- WHO PHASES 2 AND 3

(Further spread of influenza disease with involvement of multiple continents)

Surveillance

- Monitor surveillance reports from WHO and CDC on national and worldwide morbidity and mortality data
- Discontinue monitoring of arrivals at quarantine stations
- Focus laboratory surveillance on detection of antigenic drift variants or reassortant viruses
- Assess all surveillance activities and eliminate or modify, as needed

Emergency Operations

- Response Phase
- Assume responsibilities at the State Emergency Operations Center as the Operations Officer for direction and implementation of all response to the event

Vaccine Delivery

- Continue distribution and control use of vaccines and antivirals (BOI and Central Pharmacy)

Communications

- Coordinate communications with ESF14 once State Emergency Operations Center opens
- Provide frequent updates of situation to state media, as well as information to public, with guidance and specification of actions
- Hold daily news conferences

F. SECOND WAVE ----- WHO PHASE 4

(Recrudescence of epidemic activity within several months following the initial wave of infection)

Surveillance

- Continue *Interpandemic* routine sentinel surveillance systems
- Assess needed and feasible surveillance activities

Emergency Operations

- Continue Response Phase
- Maintain SEOC operations in preparation for the *Second Wave*

Vaccine Delivery

- Continue distribution and control use of vaccines and antivirals by Central Pharmacy

Communications

- Continue functions of *Pandemic Phase*

G. PANDEMIC OVER ---- WHO PHASE 5

(Cessation of successive pandemic “waves” accompanied by the return of the more typical wintertime “epidemic” cycle)

Surveillance

- Summarize findings and report to appropriate parties
- Assess needed continuation of any surveillance activities

Emergency Operation:

- Return to normal operational levels (Recovery Phase) those activities which assist systems
- Continue to provide support and planning to affected locations, but transition Emergency Operations Officer responsibility back to the Division of Emergency Management

Vaccine Delivery

- Assess supply status and any imminent needs
- Prepare report assessing vaccine delivery response

Communications

- Withdraw from involvement with SEOC functions
- Work with other functions to put pandemic into historical perspective

IX. STATUTORY AUTHORITY

Statute	Agency	Authority
Chapter 68. Title 42	Federal Government	<ul style="list-style-type: none"> • provides authority to declare and respond to emergencies and provide assistance to protect public health; implemented by the Federal Emergency Management Agency
<p>Chapter 252, Florida Statutes Emergency Management Act</p> <p>Section 381.003, F.S.</p>	<p>Governor Division of Emergency Management</p>	<ul style="list-style-type: none"> • allows Governor to declare a state of emergency • gives Governor and Division direction and control of emergency management • allows Governor and Division to delegate authority to carry out critical functions to protect the peace, health, safety, and property of the people of Florida
<p>Chapter 381, F.S.</p> <p>Section 381.0011, F.S. Communicable Disease and Quarantine</p> <p>Section 381.00315, F.S. Public Health Emergencies and Advisories</p>	Department of Health	<ul style="list-style-type: none"> • authorizes the department to administer and enforce laws and rules relating to control of communicable disease • authorizes the department to declare, enforce, modify, and abolish quarantine of persons, animals, and premises • authorizes the department to specify the conditions and procedures for imposing and releasing a quarantine • authorizes the State Health Officer to declare public health emergencies and issue public health advisories
Section 768.28, F.S. Sovereign Immunity for State Officers and Employees	State Agencies	<ul style="list-style-type: none"> • protects state employees who administer immunizations as part of their official duties
Section 120.54, F.S.	State Agencies	<ul style="list-style-type: none"> • allows state agencies to adopt temporary emergency rules when there is immediate danger to public health, safety, or welfare without going through the normal rule making process
Section 381.0012, F.S. Enforcement Authority	Department of Health	<ul style="list-style-type: none"> • authorizes the department to maintain necessary legal action; request warrants for law enforcement assistance; and directs state and county attorney, law enforcement and city and county officials upon request to assist the department to enforce the state health laws and rules adopted under Chapter 381, F.S.

X. COMPONENTS

A. SURVEILLANCE

The DOH Secretary is responsible for the overall direction and control of health-related personnel and resources committed to control of an influenza pandemic at the State level, including surveillance and related activities. The Secretary's responsibility at the local level is through the local County Health Department (CHD) Director.

Both virologic surveillance, in which influenza viruses are isolated for antigenic and genetic analysis, and disease surveillance, in which the epidemiologic features and clinical impact of circulating strains are assessed, should be viewed as equally critical for pandemic preparedness. Surveillance of both influenza virus and disease provides information critical to an effective response.

Florida Surveillance - Routine surveillance activities in Florida are also part of the national monitoring system (items 1 and 2 below). Current on-going activities include:

1. A sentinel physician surveillance network system which: a) reports weekly ILI and total number of patient clinic visits by age group and b) submits viral specimens for viral isolation and strain typing
2. Voluntary reporting through the CHD of ILI outbreaks in institutional settings, such as long term care facilities and prisons

Viral isolation and identification (strain typing) is performed by the Jacksonville and Tampa DOH laboratories.

National surveillance - In the US, national influenza surveillance is coordinated by the CDC, with state and county health departments assuming responsibility for virologic, mortality and morbidity components. These activities consist of:

1. *WHO Collaborating Laboratory Surveillance* – approximately 70 labs report the number and type of influenza viruses isolated each week, as well as submit representative and unusual viral specimens to CDC for antigenic analysis
2. *State and Territorial Epidemiologist Report* – the level of influenza in their state each week as “no activity,” “sporadic,” “regional,” or “widespread” is reported based on incoming information from the field
3. *121 Cities Influenza and Pneumonia Mortality System* – Vital Statistics Offices of 121 US cities report on a weekly basis the percentage of total deaths caused by influenza and pneumonia (4 cities in Florida)
4. *Sentinel Physicians ILI Surveillance System* – a voluntary national network of physicians and clinics that report number of patients presenting with ILI and total number of patient visits by age group each week

International surveillance - These activities are coordinated at the Centers for Disease Control and Prevention (CDC) by the World Health Organization (WHO) Collaborating Center for Influenza Reference and Research. WHO's global influenza network includes approximately 110 national laboratories in over 80 countries and four international reference centers. The CDC maintains frequent communication with this network concerning the numbers and types/subtypes of influenza viruses isolated, including the extent of influenza-like disease occurring at the time of virus isolation.

1. Interpandemic Period Activities (*WHO PHASE 0, LEVEL 0-1*)

In the preparation for a pandemic event, routine surveillance systems should be expanded to subpopulations that might serve as an early warning system or that are particularly vulnerable to influenza:

- a. Maintain the routine sentinel physician network and expand to one physician or clinic for every 250,000 population - 64 sentinel sites in Florida
- b. Maintain existing virologic surveillance capacities in the two state laboratories that isolate and identify isolates during regular influenza surveillance season
- c. Institute an aberration detection system that monitors daily patient load at selected urgent care facilities throughout the state – this system detects variation in emergency outpatient visits that would then be investigated to determine a cause, which could be influenza
- d. Develop an unusual and unexplained deaths surveillance system in collaboration with state medical examiners that would serve as a dual system with bioterrorism surveillance, to monitor daily/weekly the number of deaths reported by the 24 medical examiners for Florida's 67 counties
- e. Develop a mortality surveillance system to monitor weekly influenza and pneumonia related causes of death by utilizing the four Florida cities who report such data to the 121 cities influenza and pneumonia deaths reporting system
- f. Consider feasibility and usefulness of a weekly influenza reporting system in patients tested for respiratory illness etiology using current participants in a hospital-based RSV surveillance system
- g. Emphasize reporting of outbreaks in nursing homes and other institutional settings at the local level and provide regional epidemiologic support for investigation activities, including laboratory support to identify causes
- h. Explore feasibility of new surveillance systems for work place and/or school absenteeism – selected institutional and major labor work forces that would report absenteeism on a weekly or daily basis, looking for rates of 10% or greater, lasting for several days – by determining needed resources to implement and maintain such a system; expand where already in place
- i. Explore a possible hospital beds-filled and beds-available surveillance system to locate and monitor available inpatient health care space using information from the Agency for Health Care Administration (ACHA) for baseline data and enrolling selected hospitals to monitor daily or weekly capacity

2. Novel Virus Alert (*WHO PHASE 0, LEVEL 2*)

Surveillance goals for the *Novel Virus Alert* stage are to continue routine and enhanced surveillance activities as set up during the *Interpandemic* period or to activate routine surveillance systems if alert occurs during the period between influenza “seasons” as well as consider, develop, and implement other activities:

- a. The Bureau of Epidemiology will obtain, for use in the state labs, appropriate reagents from the CDC to detect and identify the novel virus strain; local private labs without virus strain identification capacity will be encouraged to obtain and use rapid antigen testing kits

- b. Notify laboratory directors, ICPs, physicians, emergency rooms, and urgent care centers to request submission of specimens for viral culture from patients presenting with ILI or with unusual severe symptoms, especially those with a recent travel history to or from the region of novel virus circulation
- c. If not already in place, implement the two mortality surveillance systems developed in prior phase
- d. Explore a possible contact and report system with the military hospitals for timely alert of influenza illness in traveling military personnel

3. **Pandemic Alert Activities (*WHO Phase 0, Level 3*)**

Once a pandemic influenza strain has been identified circulating internationally, the goal of the *Pandemic Alert* surveillance is to identify the appearance of the novel virus in Florida. Certain activities should be implemented during this stage of the event:

- a. Meeting of the pandemic planning Executive Coordinating Committee to: 1) review existing surveillance activities, assess their findings, and evaluate possible enhanced surveillance plans as proposed and 2) determine media needs
 - i. Consider activation of the hospital beds-filled and beds-available surveillance system developed during earlier stages, possibly utilizing local resources who will report to the state on a daily or weekly basis
 - ii. Explore the development of an international port ILI surveillance system for virus importation by new arrivals or travelers returning from countries where the virus originated
- b. Development of contingency plans for procurement of laboratory equipment and supplies, including possible hiring or shifting of additional staff to handle an increased demand for resources, should be addressed by the Executive Coordinating Committee

4. **Pandemic 1 Activities (*WHO Phase 1*)**

The surveillance goals for the *Pandemic Imminent* stage are to implement and pilot test any final modifications in the enhanced systems as developed and implemented in earlier stages.

- a. Continue *Interpandemic* and *Novel Virus Alert* surveillance activities, with consideration for modifications as needed
- b. Continue analysis of incoming patient data to determine populations at greatest risk
- c. Give consideration to collaboration with the CDC for any special studies that could be conducted without further compromise of existing limited resources:
 - i. Assessment of control measures such as closing of schools and businesses
 - ii. Description of unusual clinical syndromes
 - iii. Description of unusual pathological features for death cases
 - iv. Assessment of the effectiveness of vaccination or chemoprophylaxis
- d. If determined to be feasible and useful, implement the international port ILI surveillance system developed in previous phase

5. Pandemic 2 Activities (*WHO Phase 2*)

The surveillance goal for the *Pandemic* stage is to describe the epidemiology of pandemic influenza in Florida. This information will be used to develop preventive action recommendations, allocate medical resources, and respond to public and media questions and concerns.

- a. Assess all current surveillance activities in order to eliminate or modify those lacking support due to limited or no resources
- b. Focus laboratory surveillance on detection of antigenic drift variants or reassortant viruses for detection of possible changes in the original pandemic strain
- c. Monitor surveillance reports from WHO and CDC on national as well as international morbidity and mortality for dissemination of surveillance data to those in need of such information
- d. Discontinue international port ILI surveillance for arrivals from affected countries

6. Second Wave Activities (*WHO Phase 4*)

Surveillance activities, given that adequate resources remain, will be much the same as in the *Interpandemic* stage with the sentinel physician system in place. All surveillance sources will need to be convinced that their contributions are still essential because of the likelihood of a second, and possible third, wave of illness. Assessment of needed and feasible activities should take place.

7. Pandemic Over Activities (*WHO Phase 5*)

Surveillance goals of the *Pandemic Over* stage are mainly those of assessment:

- a. A detailed retrospective characterization of the pandemic
- b. Evaluation of the effectiveness of protective action recommendations and emergency management strategies
- c. Needed continuation of any surveillance activities

B. VACCINE DELIVERY

1. Introduction

The annual distribution and administration of vaccine for each winter's predicted strain of influenza is an "institutionalized" process involving both the public and private sectors. For this annual vaccination effort, the vaccine type is predicted by the Centers for Disease Control and Prevention (CDC) approximately 18 months before the anticipated influenza season. Two U.S. and one English manufacturer produce approximately 70 to 80 million doses over a six to eight month production period, with the supply ready for distribution during October and through the influenza immunization period of October through February.

Except for some children under 8 years of age, effective immunization is generally achieved with a single dose of vaccine. Approximately 90 percent of the vaccine is administered by the private sector and is directed toward high-risk individuals as defined by Advisory Committee on Immunization Practice (ACIP).

The next pandemic will pose a number of threats to this existing vaccine delivery and immunization process. Critical factors that will affect the current system of vaccine distribution include the following:

- The time period for the identification, production, and distribution of vaccine to prevent influenza will be greatly shortened, placing considerable burdens on all existing processes and procedures.
- Because time frames for planned production, distribution, and administration may be shortened, significant shortages and delays in vaccine availability will likely arise.
- In all likelihood, the target population for vaccination coverage will be extended well beyond the typical high-risk populations, with a potential goal of vaccinating the entire population.
- The influenza virus encountered during a pandemic will represent a new strain, with new hemagglutinin (HA) and/or neuraminidase (NA) antigens. Thus, to maximize vaccine efficacy, a second dose of vaccine given approximately 30 days after the initial administration may be necessary.

As a result of these concerns and considerations, state and local public health providers must develop a strategic plan for the management of vaccine delivery and administration during a pandemic. That plan must ensure that the distribution and allocation of available vaccine is completed in an organized and coordinated manner in order to maximize the public's health and safety.

The Comprehensive Emergency Management Plan (CEMP), Method of Operations, states that the state of Florida utilizes a bottom-up approach in all phases of emergency management, with emergency activities being resolved at the lowest possible level of government. The resources of municipal, county, state and the federal governments are utilized in sequential order to ensure a rapid and efficient response. Each level of government, upon requesting assistance from the next level of government, must ensure that local requirements have exceeded resources requesting assistance from the next higher level.

2. Assumptions

When considering the challenges that must be addressed to ensure a smooth and efficient distribution of available vaccine, the state of Florida has accepted CDC guidance and has based its plan for making vaccine available on the following assumptions:

a. Supply

Based on guidelines issued by the CDC, it is understood that in the event of a pandemic, the total vaccine supply will be under the control of the federal government. This suggests that Florida will be assigned an "allotment" of vaccine and that all distribution efforts will be based on that allocation.

b. Distribution Activity

Actual distribution activities cannot begin until the CDC, in cooperation with manufacturers, can offer an expected date for delivery of vaccine.

c. Shortages

The vaccine allotment may not be adequate to meet the state's entire need for vaccine. That is, vaccine shortages are expected. These shortages may be so extensive that the vaccine supply would not be adequate to protect all individuals even identified as having a critical role in managing the crisis.

d. Costs

The state of Florida and local communities will need to absorb the "up-front" costs associated with the purchase, delivery, and administration of vaccine. The CDC anticipates that national resources *may* be able to offset costs, although the exact level and nature of such resources is not yet determined. Federal resource assistance may include such items as federal contracts for the purchase of vaccine, grants, or reimbursement activities to subsidize the costs associated with vaccine distribution. However, at a minimum, the state and its local public health communities should expect to absorb the costs associated with the redirection of personnel and should expect to use other financial resources to meet immunization objectives.

e. Liability

Any activity related to liability issues and concerns that may be associated with instances of adverse reactions to vaccine administration will be the responsibility of the federal government. For inclusion in this federal liability coverage, the medical provider must ensure there is adequate and accurate documentation regarding the vaccine administration process and be able to identify vaccine recipients.

f. Centralized Control

Activity to properly manage the distribution and allocation of available vaccine will begin as soon as is reasonably possible. However, excessively short implementation periods, limited supply, or the emergence of a highly incapacitated infrastructure may require the state's executive leadership to issue a state of emergency. An Executive Order from the Governor will be needed for the deployment and use of state personnel, supplies, equipment, materials, and facilities: this intervention would facilitate access to and use of expanded resources to meet vaccination objectives.

3. Interpandemic Infrastructure

As a base for disaster planning associated with vaccine delivery issues, Florida intends to rely to a large extent on the strength of its current distribution system, which is based in the Department of Health's Bureau of Immunization and the Central Pharmacy. That infrastructure is currently used to efficiently distribute

childhood vaccine. In 1999, an average of 200,000 doses of childhood vaccine was distributed each month. This distribution program has the systems, policies, and procedures, and these processes can be adapted to assist the state in its pandemic vaccine distribution goals and objectives. Specifically, the current distribution system includes:

- A central pharmacy for management of a state distribution system.
- Adequate coolers and back-up power for proper storage of vaccine.
- Adequate supplies for repackaging vaccine as necessary.
- Established protocols and lines of communication.
- An existing communications infrastructure, which includes phone and fax accessibility for the community.
- An existing computer system for tracking inventory receipt and shipping.
- Trained professional and support staff, who are capable of preparing shipments for up to 100 different sites per day, with shipments averaging 15,000 doses per day.
- Experience with providing rapid, accurate service with the ability to complete and ship orders within two to three days of receipt.

4. Pandemic Vaccine Supply and Distribution

a. Supply Needs versus Allocation

Florida had approximately 16 million residents in the year 2000. Faced with a novel influenza virus, estimates suggest that Florida could need over 32 million doses of vaccine, with adequate lead-time, to fully immunize its population. This number may swell considerably during the winter due to the non-resident immigrant and vacationing populations. However, due to anticipated shortages and delays in acquiring vaccine, the actual distribution will, in most likelihood, be substantially less than the amount needed for full population immunization.

b. Ordering and Distribution

Assuming that the need will exceed vaccine availability, Florida will submit its order to the CDC for the maximum allocation of vaccine. The CDC will assume responsibility for ensuring that the manufacturer ships the vaccine to Florida's Central Pharmacy. If the manufacturers and the CDC allow multiple shipping sites, health departments or a health department's previously identified community partner in selected large counties will be targeted for direct shipment. This will by-pass secondary management by the Central Pharmacy and facilitate faster access to vaccine within the community. In order for counties to be considered for direct receipt of vaccine, the following conditions must be met:

- The county health department must have adequate storage capacity to safely accept direct shipments.
- The epidemiology of the disease suggests that faster access to vaccine is needed in that community.
- The county health department has developed a clear community-based plan to ensure vaccine will be quickly and properly redistributed throughout the county.

The Central Pharmacy estimates it would be able to store 500,000 doses of influenza vaccine at any one time. This amount is in addition to the other vaccines and biologicals normally stored in its facilities. Temporary relocation of some existing inventory would be considered if capacity storage greater than 500,000 doses is needed. Current activities are underway to identify the state's partners, such as local hospitals, that would be able to assist with these short-term emergency storage needs.

The Bureau of Immunizations and Central Pharmacy staff will focus on redistributing the flu vaccine as quickly as possible to local communities. To accomplish this objective, staff will use the existing infrastructure and contracts with commercial carriers in order to deliver the vaccine to secondary storage sites in each county. If existing contracted commercial carriers are unable to provide the full extent of needed delivery services, and other commercial carriers cannot be found to provide comprehensive and timely delivery services, the Department of Health will seek an executive order authorizing emergency delivery assistance. This may involve use of police and/or military personnel to ensure vaccine distribution, as outlined in the CEMP, Emergency Support Function (ESF) 1 [Transportation] and ESF16 [Law Enforcement and Security].

5. County Health Department Activity

For the majority of Florida's 67 counties, the local vaccine storage site will be based at the local county health department. These facilities have the experience and resources to properly store and secure vaccine as well as track its receipt and redistribution. As local storage sites, each county health department will be responsible for developing a local plan that conforms to the priorities set forth below. Specifically, county health departments will be required to:

- Educate the local community in advance of a pandemic.
- Identify the maximum amount of vaccine that can be accepted under emergency conditions for short-term storage.
- Define procedures to assure the biological safety and physical security of the vaccine within the health department.
- Identify the community partners who will work with the health department to administer vaccine to targeted populations.
- Define procedures to accurately document the receipt and re-distribution of vaccine. This documentation should, at a minimum, indicate the amount and date the vaccine is received, as well as the amount, date, and method of redistribution to the identified community partner.
- Develop a system for notifying those partners with as much advance notice as possible. Notice will include timing for the local availability of vaccine for delivery or pick-up.
- Assure that the redistribution of vaccine will occur prior to receiving the next capacity shipment so that no vaccine is lost because of storage shortages.

In some counties, where large provider groups can accept direct shipment of large amounts of vaccine, additional local distribution sites may be added. These additional shipping sites should be identified and included in the local county health department's plan. Examples of sites that local communities should consider for direct shipment from the central pharmacy include:

- Tertiary care centers with extensive outreach clinics and services.
- Large provider practices serving over 1,000 persons per month.
- Large residential facilities with over 500 beds serving elderly, disabled, or other dependent populations.

The Central Pharmacy will continue shipments of vaccine to county health departments and other identified community sites as necessary to address community needs. Shipments may occur weekly to monthly depending on vaccine supply and usage. If additional staff is needed to manage excessively large shipments or to continue vaccine management and shipping activity for extended hours or over non-traditional workdays, staff from the central office will be recruited. This will include staff from the Bureau of Immunization as well as other staff from the Division of Disease Control. These staff, regardless of primary duties and authority, will be responsive to Central Pharmacy staff and staff from Immunization responsible for vaccine distribution and management.

When developing a redistribution plan, county health departments should consider the following provider groups as potential partners for vaccine redistribution and administration:

- Federally funded health care centers and clinics
- Private medical providers, coordinated through the local medical society
- Urgent care centers, walk-in clinics, or managed care organizations
- Hospitals with outpatient services and clinics
- Hospital emergency facilities
- Nursing homes and assisted living facilities
- Paramedics and emergency management personnel
- School health clinics, including colleges and universities
- Commercial health care vendors (e.g., home health agencies)
- Local emergency response and support agencies, such as the Red Cross

The recruitment of community partners will depend on the resources available to the community. In addition, the actual coordination with community partners may be further refined based on the populations that are targeted for actual disease management during a pandemic.

In working with community partners that will administer vaccine during a pandemic, county health departments must ensure that these partners understand their roles and the expectations associated with this partnership. Specifically, the community partner must be prepared to accept and store their allotment of vaccine and must ensure that vaccine administration is properly documented for accountability purposes, and in the event that reimbursement becomes available. Finally, the personnel resources devoted by community partners should be considered a public health contribution to the community, rather than a cost-reimbursable or profit-making activity.

During a pandemic, communities who believe they are not receiving their fair share of vaccine, or community members who believe they are not receiving the full cooperation of the local county health department, will be directed to contact the Department of Health, Bureau of Immunization. That office will assume responsibility for managing calls and requests from the community to consider amendments to the allocation, distribution sites, and shipment allotments.

6. Targeted Recipient Groups

a. Establishing Target Recipient Groups

In view of the likely vaccine shortage, the United States Public Health Service, in conjunction with various advisory committees has formulated *draft* recommendations for a rank-order list of high priority target groups for vaccination. The order of these groups is based on a number of factors including the need to maintain those elements of community infrastructure that are essential to carrying out the pandemic response plan. Other factors include limiting mortality among high-risk groups, the reduction of morbidity in the general population, and the minimization of social disruption and economic losses. The draft rank-order list is subject to change - potentially on short notice - depending on the epidemiological and clinical features exhibited by the actual pandemic strain. Plans based on these draft recommendations should contain a great deal of flexibility in order to be responsive both to the final recommendations and changing conditions during the pandemic.

b. Rank-Order List of High-Risk Groups

- Health-care workers and public health personnel involved in the distribution of vaccine.
- Persons responsible for community safety and security, e.g., police, firefighters, paramedics, military personnel, National Guard, “local responders” not included in first priority group (e.g., ambulance drivers).
- Other highly skilled persons who provide essential community services whose absence would either pose a significant hazard to public safety (e.g., nuclear power workers) or severely disrupt the pandemic response effort (e.g., persons who operated regional telecommunications or electric utility grids). Members of these groups are likely to vary widely from community to community and are highly influenced by local circumstances.
- Persons traditionally considered being at increased risk of severe influenza illness and mortality, as currently defined by the Advisory Committee on Immunization Practices.
 - Persons of any age with high-risk medical conditions.
 - Pregnant women.
 - Persons in nursing homes and other long-term care facilities.
 - Persons age 65 or older without high-risk medical conditions.
 - Infants between the ages of 6 to 12 months, if supported by epidemiological and clinical data.
- Persons who, in the judgment of state and local health officials, provide critical community services (e.g., utility workers, funeral services personnel, persons involved in the transport of essential goods such as food).
- Household contacts of persons with high-risk medical conditions and household contacts of persons in the first three groups.
- Pre-school age children (especially those attending day-care centers)
- Healthy persons between the ages of 18 to 64.
- School age children (the population least likely to have severe illness).

c. General Considerations

Both the public and private sector will be mobilized to administer whatever vaccine is available. The exact proportion of vaccine to be purchased and administered through the public versus the private sector is yet to be established. However, it is likely that the public sector will take responsibility, at a minimum, for vaccinating health care workers, other "local responders," certain essential community servants, the poor, and the uninsured. The actual organization of the vaccination program, in both the public and private sectors, will have to be customized for each community and target group and will depend on the extent and availability of the available infrastructure and resources. Success of the pandemic vaccination program will be determined in large part by public confidence in the benefits of influenza vaccination and the strength of state and local planning.

d. References

- i. Comprehensive Emergency Management Plan 2000, dated February 1, 2000.
- ii. Emergency Support Function 8, Medical and Health Services (Draft, April 1998).
- iii. Emergency Support Function 1, Transportation, dated February 1, 1998.
- iv. Emergency Support Function 16, Law Enforcement and Security, dated February 1, 1998.

C. ANTIVIRAL AGENTS

1. Introduction

The current situation with antiviral agents presents numerous challenges to their effective use in pandemic flu planning and hence in the event of a pandemic. Currently there are four agents. The two standard antiviral agents for years have been amantadine and rimantadine. These drugs can be used for treatment if available early enough in the clinical course of a patient, or for prevention, but are effective against influenza type A only. These agents also have side effects, including effects on the central nervous system, which can make their long-term use a problem in people with key leadership or technical roles. The new classes of drugs are neuraminidase inhibitors that were originally approved for treatment use only, but one has recently received approval for prevention as well. These are effective against influenza types A and B. There may be other agents with varying recommended uses available in the future.

Certain conditions would have to change in order for these disease agents to become a reliable and consistent part of any pandemic influenza planning:

- A centralized supply of a sufficient amount of these agents would have to be available for controlled distribution in any kind of planned effort.
- Guidelines for effective use in a community setting for a pandemic situation would have to be further defined with accepted standards.

- Cost effectiveness of preventive versus therapeutic use should be analyzed for anticipated use in pandemic conditions.

Currently none of these assurances is available. While these questions are being studied, the lack of definitive information or direction creates uncertainty surrounding the appropriate use of these agents in an influenza pandemic. Indeed it has been argued that these agents currently would play no effective role at all in an influenza pandemic flu response. While this extreme view is arguable, the burden is very much on those who would disagree to come up with a workable alternative.

2. Assumptions

A sufficient quantity of these agents would have to be available to the Central Pharmacy or to specific county health departments in order for any planned effectual use of these medications to take place.

3. Infrastructure and Distribution

A similar method to that described in the vaccine delivery part of this plan would be used to distribute antiviral medications. Key to any distribution plan in determining where the priorities are for places to distribute the medications would be specifics as to the exact ways the antivirals are recommended for use.

While the primary focus of the state's plan is on the distribution of vaccine for the prevention of a novel influenza virus, the CDC anticipates that a limited amount of antivirals will be available for the treatment of the disease. Their estimates suggest that nationally, adequate antiviral stock will be available to treat from 500,000 to 3 million persons per month. In addition to the anticipated limited supply, the administration of antivirals as either a prophylaxis or treatment regimen is rigorous, requiring approximately 60 doses per month to prevent illness and approximately 10 doses for therapeutic intervention. Therefore, the Central Pharmacy will control distribution and use of Florida's allocation of any antivirals. The Department of Health and the executive committee involved in implementing this plan shall identify those individuals and groups of individuals who shall be eligible to receive these agents. In general, use of antivirals shall be reserved for the highest priority groups with consideration given to maintaining the integrity of the healthcare community and the leadership and persons responsible for the safety and security of the communities most effected by the novel virus.

4. Targeted Recipient Groups

Special consideration needs to be given to the decisions made for who receives the probably limited supply of antivirals. The most appropriate use would result in combination of risk groups, those in most need of amelioration of their disease and while at the same time most critical to continuation of health and community services. While this might be the most effective use of these limited supplies, this will also encounter controversy as use in this way would make available antivirals to certain key individuals who are seriously ill or with predisposing conditions and not make it available to other individuals who are similarly ill with comparable predispositions. In addition, because of the anticipated limited supply, a formula for

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distribution is challenging in these terms because of special case considerations. This means that certain key locales would have to serve as distribution points in a

responsive way to the most acute needs. An effective communication system to maximize the use of these agents is therefore an absolute necessity. If the supply could prove to be more generous than currently can be anticipated, the distribution of these agents can be considered for more numbers of people who would be at high risk for complications of influenza infection due to predisposing medical conditions.

5. General Issues

Other considerations for antivirals include use in areas where there is a relative vaccine shortage and sufficient supplies of antivirals are available to ameliorate this until adequate vaccine supplies could become available. Antivirals could also serve to treat health care workers and other critical classes of individuals between vaccine doses. Again, these uses are predicated on adequate supply of antivirals. Because no assumption can be made of sumptuous resources in this regard, there is no provision for use of antivirals in a prophylactic way because of the increased consumption of supplies compared to treatment. This will remain so unless more information concerning cost effectiveness shows an alteration in this balance or unless supplies become so very adequate that this higher rate of usage can be entertained with some prospect of efficacy. Even in the scenario of adequate supplies and the ability to provide these agents widely, there is the specter of emergence of viral resistance and the transmission of resistant strains. It cannot be over-emphasized that antivirals, no matter how well supplied and distributed, can never be assumed to be a substitute for proper vaccine protection.

D. COMMUNICATIONS

1. Responsibilities

Keep the public informed during all phases of the pandemic flu, remembering that proactive communication is much more effective than reactive communication.

Provide the public, through the media, historical information, tracking and updated information about the pandemic and continuous information of its course and impact upon the population.

Assume the role of Communications Liaison through *Inter-Pandemic*, *Novel Virus Alert*, *Pandemic Alert*, *Pandemic 1* stages, and assist Department of Community Affairs (DCA) once the Emergency Operations Center (EOC) is activated.

Prepare and distribute appropriate press releases and updates for the media.

2. Concept of Operations

The Department of Health's Communications Office will be responsible for informing the public, through the media, throughout the pandemic. During the initial stages – *Pre-Pandemic*, *Novel Virus Alert*, *Pandemic Alert* and *Pandemic 1* - the Communications Office will be briefing the Governor's Communications Office, and once the EOC is activated, they will be working with the DCA to effectively implement ESF14 [*Public Information Emergency Support Function*].

Template releases will be prepared (see samples under preparedness), whereby the latest bits of information can be filled-in and the releases can be sent out quickly. The Communications Office will also have members readily available to work with Epidemiology staff to prepare talking points for Health Secretary and Governor during the pandemic.

Releases will be sent to media representatives and directors of all 67 county health departments (CHDs), who will subsequently distribute to local media with county-specific information.

3. Pandemic Phases

During the phases of the pandemic, template releases will be sent out in a proactive manner. The overview of each will be as follows:

Inter-pandemic – Business as usual. Influenza viruses antigenically related to those recently circulating. No indication of a new virus subtype.

Novel Virus Alert – There is a virus of potentially dangerous magnitude in another country or region. It's not here yet, but DOH officials are preparing for it.

Pandemic Alert -- We have a case in one or more Floridians and we are seeing person-to-person transmission in the general population in at least one country.

Pandemic 1 -- We are now seeing transmission from person-to-person; in addition cases are on the rise.

Pandemic 2 – High deaths in Florida.

4. Public Information Staffing

Governor's Agency Communications Offices are alerted that their help may be needed. A schedule is mapped out for them, sent via fax and e-mail as well as telephone follow-up.

Department / Division Public Information Staff work out a staffing plan to implement 12-hour shifts for duration of event, as needed.

5. News Conferences from the State Emergency Operations Center

The state begins to hold needed news conferences each day, which are offered live via satellite to stations around the state and nation. News conference participants may include:

- Governor or Lt. Governor
- Health Secretary
- Director of Emergency Management
- Other Cabinet officials, congressional delegation, or legislative leadership
- Florida National Guard representative
- Florida Department of Law Enforcement representative

6. Reporter Inquiry

- What are experts predicting about the severity of the pandemic?
- When in Florida or nation's history have we faced a pandemic of this magnitude?
- What are the anticipated affected areas of the pandemic?
- How many people potentially will be affected by the pandemic?

- When will a mass vaccination begin?
- How many people are working in the Emergency Operations Center (EOC) now?
- How is the pandemic plan progressing?
- How long will the pandemic last?
- What are our plans to control adverse effects?
- Do we have enough vaccine and hospital beds?
- Are there any special concerns (e.g., the elderly), most at-risk individuals?
- Is the Florida National Guard on alert?
- Any fatalities to date?

7. News Conferences from the Emergency Operations Center

ESF14 begins managing two or more news conferences a day and continues the flow of emergency information to the public via the Department's Web Site and The Florida Emergency Information Line.

8. Reporter Inquiry

- How bad is the pandemic predicted to be?
- What other tragic events in Florida's history is it comparable to?
- How many people have died?
- How many people will be indirectly affected?
- Are there enough resources to handle the aftermath?
- If additional resources are needed, where will they come from?
- What is the Florida National Guard's role at this time?
- Which counties/areas are most impacted?
- Is it anticipated that the federal government will have to be asked for help?
- What is the advice for those who are sick at this point?

9. Reporter Inquiry, Post-Impact

- How many people have died?
- What type of federal assistance are we getting?
- How well did the state plan for and respond to this pandemic?
- What are your long-term concerns?

10. Partner with WFSU-TV in creating and maintaining the "Florida Emergency Response Network."

The ESF 14 Coordinator, in consultation with the Governor's Office, will serve as the state's liaison to WFSU-TV and the "Florida Emergency Response Network."

When the EOC moves to a Level 2 Activation, the ESF 14 Coordinator will liaison with WFSU-TV and determine when to make the Florida Emergency Response Network operational.

ESF 14 will issue news releases for the purpose of promoting the function and use of the Florida Emergency Response Network.

The State's Lead Public Information Officer and Room Manager will be tasked with

taking incoming requests for live images utilizing the Florida Emergency Response Network satellite time.

E. Emergency Management Plan - February 1, 2000

1. The State of Florida Comprehensive Emergency Management Plan

The Department of Community Affairs' (DCA) Division of Emergency Management prepares and maintains a Comprehensive Emergency Management Plan, which provides for an emergency management system that includes a broad range of preparedness, response, recovery, and mitigation responsibilities. The primary focus of this document is to outline roles, responsibilities, and appropriate actions taken as a result of an emergency or disaster.

The DCA Secretary coordinates with local, state and federal elected officials and liaisons with state agency heads and cabinet officers, providing a key link with the Governor and staff.

When an emergency or a disaster exhausts local governmental resources, assistance may be requested from state and federal resources through the Division of Emergency Management, which then activates the State Emergency Response Team at the State Emergency Response Center.

The State Emergency Response Team consists of representatives of more than 50 state agencies, voluntary organizations, and business groups. Additionally, the emergency management agencies of counties, municipalities, special districts, and school districts assist in disaster response and recovery through statewide mutual aid agreements.

The State Emergency Operations Center, in almost all disasters, maintains direction and control while serving as the central clearinghouse for disaster-related information and requests for assistance from local government. After an area has been impacted by a major disaster, the state continues to provide support to local communities through response and recovery operations. Recovery assistance includes community relations teams and coordination with unmet needs committees and other state and local agencies. In the case of presidentially declared disasters, state, federal and local governments jointly coordinate recovery efforts from a Disaster Field Office.

2. Web Site Location

Florida's Comprehensive Emergency Management Plan can be found at: www.floridadisaster.org then RESOURCES, DEM LIBRARY

XI. APPENDICES

A. GLOSSARY

AHCA – Agency for Health Care Administration

Antivirals - Oral medications that act against the influenza virus, not vaccine.

BOE - Bureau of Epidemiology

BOI - Bureau of Immunization

CHD - County Health Department

CDC – Centers for Disease Control and Prevention

DCA – Department of Community Affairs

DEM – Division of Emergency Management

ESF- Emergency Support Function

HAN - Health Alert Network

ILI – Influenza-like-illness

Morbidity – the relative incidence of disease

Mortality – death caused by disease, the number of deaths in a given time or place

Novel virus – a virus that is new to the human population, a mutation from an existing virus

Pandemic – worldwide epidemic

SEOC – State Emergency Operations Center

VAERS – Vaccine Adverse Events Reporting System

WHO – World Health Organization

B. INDEX OF KEY PARTNER AGENCIES

Department of Health

Deputy Secretary for Health, Annie Neasman
Disease Control Director, Landis Crockett, M.D.
Acting State Epidemiologist, Steven Wiersma, M.D., M.P.H.
Bureau of Immunization, Charles Alexander, Chief
Bureau of Laboratories, Ming Chan, PhD., Chief
Office of Communications, Bill Parizek
Bureau of Pharmacy Services, Jerry Hill, Chief
Planning, Evaluation and Data Analysis, Barry Mittan
Emergency Operations, Bill Dart
Emergency Operations, Ellery Gray, Chief
Office of General Counsel, Tom Koch
Alachua County Health Department, Tom Belcoure, Director
Palm Beach County Health Department, Savita Kumar, M.D., Epidemiologist

Department of Corrections

Bert Hurowitz, M.D., Office of Health Services

Agency for Health Care Administration

Laura MacLafferty, Bureau of Managed Care and Health Quality

Department of Education

John Wiegman, Deputy Director for Division of Public Schools

University of Florida

Ray Moseley, Director of Medical Ethics

Department of Community Affairs

Mona Jibril, Division of Emergency Management, Training Coordinator
Lew Ibaugh, Division of Emergency Management

Florida Medical Association

Judy Cooper, Director of Health Policy

C. ANTIVIRAL AGENTS FOR PANDEMIC PLANNING AND RESPONSE

Acknowledgement

The following is an informal background document for discussion prepared by the National Vaccine Program Office and the Centers for Disease Control and Prevention. This document does not imply endorsement by any federal agency.

Introduction

There are currently four approved medications in the United States that have antiviral activity against influenza A viruses. They fall into two drug classes, namely adamantane derivatives and neuraminidase inhibitors. A physician must prescribe all four medications. Since a pandemic is expected to occur with the emergence of a novel human influenza A subtype virus from an animal reservoir or through reassortment of influenza A viruses, this document will focus upon antiviral treatment and chemo-prophylaxis of influenza A.

Background

1. Adamantane derivatives

The adamantane derivatives, amantadine and rimantadine, are chemically related, orally administered drugs that are approved for treatment and chemoprophylaxis of influenza A. Amantadine and rimantadine specifically inhibit replication of influenza A viruses, but not influenza B viruses. When administered for treatment within 48 hours of illness onset, controlled studies have found that both drugs are effective in decreasing viral shedding and reducing the duration of illness of influenza A by approximately one day compared to placebo. The recommended duration of treatment is usually five days. When used for chemoprophylaxis, amantadine and rimantadine are approximately 70 -90% effective in preventing symptoms of illness resulting from influenza A infection. The efficacy and effectiveness of amantadine and rimantadine to prevent complications of influenza are unknown. Amantadine and rimantadine are commonly used in the U.S. for chemoprophylaxis of influenza A during institutional outbreaks such as in nursing homes. Amantadine is approved for the treatment of influenza A in children aged one year and older and in adults. Rimantadine is approved for treatment of influenza A in adults. Both drugs are approved for chemoprophylactic use for influenza A in children aged one year and older.

Gastrointestinal and central nervous system (CNS) adverse effects have been reported during controlled chemoprophylaxis studies of amantadine and rimantadine in healthy adults and elderly nursing home residents. Chemoprophylactic use of both drugs has been associated with CNS toxicity such as lightheadedness, difficulty concentrating, nervousness, insomnia, and seizures in patients with pre-existing seizure disorders. Rimantadine use has been associated with fewer CNS side effects than amantadine. Amantadine is teratogenic and embryo toxic in animals. Rimantadine has not been found to be mutagenic. The safety of amantadine and rimantadine has not been established in pregnancy.

The use of amantadine and rimantadine has been associated with the rapid selection and development of resistant viruses. Drug-resistant viruses can be spread to contacts of treated individuals, including persons receiving chemoprophylaxis. Since the mechanism of resistance is the same for both adamantane derivatives, influenza A viruses resistant to one adamantane drug are also resistant to the other. There is no evidence that adamantane-resistant viruses are more transmissible or more virulent than adamantane sensitive viruses. Resistance to adamantanes does not affect susceptibility to neuraminidase inhibitors. The percentage of influenza viral isolates from the general population exhibiting resistance to amantadine or rimantadine has remained low.

*During 1999-2000, approximately 88.5 million dose-equivalents (100 mg/dose) of amantadine and rimantadine were produced in the U.S. (combined tablet/capsule and syrup). Manufacturers have estimated that up to 310 million doses (100 mg/dose) of amantadine and rimantadine could be produced each year if needed. However, this would only treat 31 million persons for five days, or provide chemoprophylaxis against influenza A for 22.1 million adults for 14 days.

There are several U.S. manufacturers of amantadine, but currently only one manufacturer of rimantadine (manufacture of rimantadine is protected by a process patent). Both drugs are produced from similar raw materials supplied by different sources in Europe. Key issues related to antiviral supply during a pandemic include the conversion time from raw material to final drug product, excess capacity for production of raw materials, capacity to stockpile both raw materials and finished product, and shelf life of raw materials and finished drug.

[*Preliminary results of unpublished CDC survey data; not all manufacturers responded to the survey. Note that amantadine is also used for treatment of Parkinson's Disease.]

2. Neuraminidase inhibitors

The neuraminidase inhibitors, zanamivir and oseltamivir, are chemically related members of a new class of antiviral drugs for influenza that have activity against both influenza A and B viruses. When treatment is initiated within 48 hours of illness onset, both drugs are effective in decreasing shedding and reducing the duration of symptoms of influenza by approximately one day compared to placebo. Zanamivir is an orally inhaled powdered drug that is approved for treatment of influenza in persons aged 7 years and older. Oseltamivir is an orally administered capsule or oral suspension that is approved for treatment of influenza in persons older than 1 year. For both drugs, the recommended duration of treatment is five days. Oseltamivir is also approved for chemoprophylaxis of influenza in persons aged 13 years and older. Zanamivir is not currently approved for chemoprophylaxis of influenza. However, controlled studies have demonstrated the efficacy of both drugs for prevention of symptoms of illness resulting from influenza infection in adults and adolescents compared to placebo. The efficacy and effectiveness of neuraminidase inhibitors to prevent complications of influenza are unknown. Since zanamivir and oseltamivir were approved in 1999, there is limited clinical experience to assess adverse effects. Oseltamivir use has been associated with nausea and vomiting during controlled treatment studies compared to placebo. Nausea, diarrhea, dizziness, headache, and cough have been reported during zanamivir treatment, but the frequencies of adverse events were similar to inhaled powdered placebo drug. Few serious CNS adverse effects have been reported for the neuraminidase inhibitor drugs; however, no controlled studies allow for conclusions regarding a direct comparison with the adamantane drugs. Zanamivir is not generally recommended for use in persons with underlying respiratory disease because of the risk of precipitating bronchospasm. Serious adverse respiratory events resulting from zanamivir use have been

reported in persons with chronic pulmonary disease and in healthy adults. There are limited data about the potential to use neuraminidase inhibitors for treatment of influenza during pregnancy. There are limited data on the use of zanamivir in children younger than 7 years old.

There are limited data on antiviral resistance to the neuraminidase inhibitor drugs. Studies have identified some evidence for the development of neuraminidase inhibitor-resistant influenza virus strains, but surveillance has been limited by the short time period that the neuraminidase inhibitors have been available for clinical use and by the lack of optimal methodology to detect viral resistance to these drugs. In vitro studies have found that cross-resistance occurs between the neuraminidase inhibitor drugs, but does not affect susceptibility to adamantane drugs.

*During 1999-2000, the quantity of neuraminidase inhibitor drugs produced for the U.S. market was estimated to be less than sufficient to treat 2 million adults for five days. The quantity of both zanamivir and oseltamivir produced for the U.S. market during 2000-01 is expected to be higher than during 1999-2000 and to increase in the future. The estimated surge capacity is unknown.

[*Crude estimate based upon incomplete responses to CDC inquiries, unpublished data.]

Adamantanes compared to Neuraminidase inhibitors

No controlled studies allow for conclusions comparing the adamantanes (amantadine, rimantadine) with the neuraminidase inhibitors (zanamivir, oseltamivir) for treatment or chemoprophylaxis of influenza A. A meta-analysis and a systematic review of published studies concluded that when used for treatment, the adamantanes and the neuraminidase inhibitor drugs are effective in reducing the duration of symptoms of influenza A by approximately one day compared to placebo. There are insufficient data on the efficacy or effectiveness of any of the antiviral drugs in preventing complications from influenza in high-risk populations. At the present time, zanamivir is only approved for treatment of influenza, while amantadine, rimantadine and oseltamivir are approved for both treatment and chemoprophylaxis of influenza A. However, controlled studies have demonstrated the efficacy and effectiveness of all four antiviral medications in preventing symptoms of illness from influenza A infection.

The costs, routes of administration, adverse effects, contraindications, and potential for antiviral resistance differ among the four drugs. There are insufficient data on the use of any of the four antiviral agents during pregnancy. In general, clinical studies have reported that the neuraminidase inhibitors have resulted in fewer serious side effects compared to placebo than have been reported for amantadine and rimantadine. However, no controlled studies allow for conclusions comparing the relative frequency or severity of adverse effects of the adamantanes versus the neuraminidase inhibitors when used for treatment or chemoprophylaxis. The impact of widespread antiviral use upon the frequency and severity of adverse events, the incidence of antiviral resistance, and resultant effect upon viral antigenicity during an influenza pandemic are unknown.

Comparison of antiviral drugs for influenza

INDICATOR	ADAMANTANE DERIVATIVES		NEURAMINIDASE INHIBITORS	
	Amantadine	Rimantadine	Zanamivir	Oseltamivir
Type of Influenza virus infection indicated for use	Influenza A	Influenza A	Influenza A Influenza B	Influenza A Influenza B
Administration	oral	oral	inhalation	Oral
Ages approved for treatment of flu	≥ 1 year	adults	≥ 7 years	> 1 year
Ages approved for prevention of flu	≥ 1 year	≥ 1 year	not approved	≥ 13 years
Cost per 5 day treatment*	\$9.82 \$1.73 - generic	\$18.87	\$44.40	\$53.00

* Cost to the pharmacist for the lowest recommended dosage for a 70-kg patient. *The Medical Letter* 1999; 41(1067): 113-120.

Options for the recommended use of antivirals during an influenza pandemic

This section outlines potential options for the recommended use of antiviral medications that the working group may wish to consider.

A. Treatment only

The recommended use of antiviral drugs would be directed toward early treatment (within 24-48 hours of illness onset) of suspected or confirmed influenza cases. This strategy would also address the relative roles of all four antiviral agents (e.g., use of only one class of antiviral drugs versus all four drugs for treatment of illness resulting from infection with a pandemic influenza A strain). Issues to be considered include specifying which patients should be treated (e.g., high-risk populations, core infrastructure, etc.), the definition of suspected and confirmed cases, when treatment should be initiated, duration of treatment, and guidelines for patient evaluation.

B. Chemoprophylaxis only

The recommended use of antiviral drugs would be focused upon chemoprophylaxis to prevent symptoms of illness resulting from infection with a pandemic influenza A strain. This strategy would direct antiviral usage toward chemoprophylaxis of specific groups (e.g., persons at high- risk for complications from influenza and other groups such as health care workers - to be identified). This strategy would also address the relative roles of all four antiviral agents (e.g., use of only one class of antiviral drugs versus three drugs for chemoprophylaxis of influenza A; zanamivir is not currently approved for chemoprophylactic use). This strategy should also address chemoprophylaxis of persons who are targeted to receive vaccination against the pandemic strain, when available. Recommendations for priority groups for antiviral chemotherapy could be modified based upon the evolving epidemiology of the pandemic. Clinical care would be focused upon management of complications of influenza such as antibiotic treatment of patients with secondary bacterial pneumonia, but would not utilize antiviral treatment. Issues to be considered include what persons should receive chemoprophylaxis, and the duration of chemoprophylaxis.

C. Treatment and targeted chemoprophylaxis

The recommended use of antiviral drugs would be for both treatment of ill patients and chemoprophylaxis against illness resulting from infection with the pandemic strain. Given the expected demand and need for antiviral drugs in this strategy, rationing or specific targeting of priority groups for chemoprophylaxis should be addressed. Chemoprophylaxis would not be recommended for widespread use and would only be recommended for specific categories of individuals (e.g., laboratory workers with direct contact with pandemic virus strains in a containment facility, health care workers in direct contact with confirmed cases, and for outbreak control in closed populations). This strategy would also address the relative roles of all four antiviral agents (e.g., which drugs should be used for treatment and which should be used for chemoprophylaxis; zanamivir is not currently approved for chemoprophylactic use.). This strategy should address the issues listed above under options A and B.

D. Targeted vaccination, targeted chemoprophylaxis, treatment

This strategy would recommend use of antiviral drugs for the highest priority groups for influenza vaccination until a vaccine-induced immune response is expected (e.g., duration until fourteen days post-vaccination). Unvaccinated high-risk persons and others could receive chemoprophylaxis against the pandemic strain for an unknown period - to be specified. All confirmed and suspected influenza cases would receive treatment within 48 hours of illness onset. Given the expected demand and need for antiviral drugs in this strategy, rationing or specific targeting of priority groups for chemoprophylaxis should be addressed. This strategy would also address the relative roles of all four antiviral agents (e.g., which drugs should be used for chemoprophylaxis and which should be used for treatment; zanamivir is not currently approved for chemoprophylactic use).

E. Other options

To be discussed.

Some questions/issues to consider when addressing options for antiviral use during an influenza pandemic:

- 1) Efficacy and effectiveness of the drugs for the proposed use (i.e. age group, risk group, etc).
- 2) Duration of chemoprophylaxis.
- 3) Resistance/Safety/Tolerance issues of the drugs for the proposed use. 4) Drug dosage for the proposed use. 5) Off label uses for drugs.
- 6) Impact of proposed uses of drugs on social disruption. 7) Public Expectations.
- 8) Delivery System (liquid, pill, inhaled).
- 9) Potential effect of antiviral drugs on the immunogenicity of a live vaccine, if available.
- 10) Research needs: What is and is not known? What research should be prioritized to meet knowledge gaps?
- 11) Key decision-making factors for analysis and their relative importance.
- 12) Need for diagnostic tests (rapid tests and/or viral culture) and surveillance information for treatment decisions.
- 13) Surveillance needs for decisions regarding options for antiviral strategies.

General Reference Material

Package label information for the four currently approved antiviral medications in the United States can be found at:

<http://www.fda.gov/cder/drug/antivirals/influenza/#drugs>

Recommendations of the Advisory Committee on Immunization Practices (ACIP) for *Prevention and Control of Influenza* can be found at:

<ftp://ftp.cdc.gov/pub/Publications/mmwr/rr/rr4903.pdf>

D. USE OF NON-TRADITIONAL SETTINGS

Guidelines for Utilization of Non-Traditional Settings for Delivery of Medical Care During an Influenza Pandemic

BACKGROUND

Influenza epidemics occur nearly every year and usually peak during December through March in temperate regions of the Northern Hemisphere. In the United States, annual influenza epidemics are associated with an average of 20,000 excess deaths and 110,000 excess hospitalizations.

The changes in the delivery of health care in the United States have resulted in increased utilization of other non-traditional medical care facilities. It is expected that an influenza pandemic may require a much larger demand on all healthcare facilities. Non-traditional healthcare settings should be prepared for increased utilization and the provision of expanded services during a pandemic.

ISSUES

CDC estimates that the next pandemic could cause between 89,000 and 207,000 deaths, between 314,000 and 733,000 hospitalizations, and between 18 million and 42 million outpatient visits. Morbidity and mortality patterns during a pandemic differ from those seen during non-pandemic years when primarily the elderly and persons with a compromised immune system are most at risk for serious disease and death. During the three pandemics of the 20th century, a substantial amount of the total mortality occurred among persons less than 65 years of age who would not be considered high risk during non-pandemic years.

GUIDELINES

Due to the large number of ill patients that will require medical services (e.g., emergency room visits, hospitalizations, and outpatient visits) during a pandemic, communities and health care organizations will need to have in place special guidelines that address what should be done if health care organizations are overwhelmed and medical care must be provided in non-traditional settings. States and municipalities should assure that planning has been reviewed at the appropriate levels of local government and that all the key stakeholders are involved (such as school principals and education board, building owners and so on). The following are general principles to be followed by communities and health care organizations when planning for this situation.

General Principles

I. Appoint an individual or task force (depending on the complexities of the jurisdiction(s) involved) to coordinate and oversee the development and implementation of the guidelines.

II. Conduct a community-wide inventory of emergency department capacity, number of hospital beds, number of intensive care unit beds, quantity of ventilators, morgue capacity, and number of health care providers available to see outpatients.

III. Estimate the number of hospitalizations that could be expected during a pandemic and determine the extent to which health care organizations might be overwhelmed. National pandemic influenza planners at the Centers for Disease Control and Prevention and the National Vaccine Program Office have developed software and a manual to aid state and local-level public health officials plan, prepare, and practice for the next pandemic. The software, entitled *FluAid*, is designed to provide a range of estimates of impact in terms of deaths, hospitalizations, and outpatient visits due to pandemic influenza. *FluAid* is available at www.cdc/od/nvpo/pandemics.

IV. Conduct a community-wide space and site resource inventory. Determine the availability of shelters, schools, gymnasiums, nursing homes, day care centers, and other potential sites for aggregate care. Establish criteria for the use of a facility. If near an accessible body of water, consider feasibility of using floating hospitals and determine location and availability of vacant land for possible mobile hospital installations. Make arrangements with owners of each facility to use the site, if necessary, to care for ill persons during a pandemic.

V. For each site identified determine: size; bed capacity (for beds at least 3 feet apart); availability of space to separate men, women and children; ceiling height; ventilation system and ability to upgrade if needed; and, availability of sinks, bathrooms, refrigerators, freezers, food preparation areas, accessibility (to patient and staff) by private and public transportation, HVAC capability, transportation requirements for movement of patients and supplies, storage capacity for pharmacy and other supplies, communications capability, water and sewage service and capacity, facilities for disposal/storage of medical waste, and facilities for staff lodging and feeding.

VI. Identify sources of extra supplies needed to provide medical care in these sites.

VII. Develop community-wide guidelines regarding what type of care could be provided at each site and what will trigger activation of these sites.

VIII. Determine how triage across sites would be managed.

IX. Follow infection control procedures outlined in *"Guidelines for Prevention and Control of Pandemic Influenza in Healthcare Institutions"* – see pages 41-44.

X. Conduct an inventory of health care personnel including current and retired MDs, DOs, RNs and other nursing personnel, veterinarians, others with medical training (e.g., emergency medical technicians), and state national guard and other potential volunteers.

XI. Determine sources from which additional staff could be acquired assuming hospitals are using much, if not all, available staff for their own needs. Define the extent of care that each type of provider can perform according to state law. For example, can pharmacists provide immunizations therefore releasing nurses to provide other types of care?

XII. Ensure that health care providers liability protection extends to providing medical care in a non-traditional setting.

XIII. Educate every health care provider about appropriate infection control procedures for influenza as well as how to care for patients suffering from influenza and its complications. The Association for Practitioners in Infection Control and Epidemiology (APIC) has developed a training manual, *Influenza Prevention: A Community and Healthcare Worker Education Program*, that, in conjunction with hospital specific pandemic influenza plans should be the basis for this training.

XIV. Designate an individual to oversee the care provided in each non-traditional setting. The type of person selected for each site may vary based on the type of care provided. This person should monitor patient flow, maintain a log of patient activity including patient outcome, and monitor availability of supplies.

XV. Planning needs to include provisions for referral to other medical care facilities as needed.

E. RESOURCE MANAGEMENT

Guidelines for Healthcare Facilities and Resources Management

BACKGROUND

Pandemics of influenza have been recognized since the 1500's. Three major pandemics occurred in the 20th century in 1918, 1957, and 1968 causing widespread illness, death, and social disruption. In 1918-1919, the "Spanish Flu" caused more than 500,000 deaths in the United States and more than 20 million deaths worldwide. In 1957-1958, the "Asian Flu" killed 70,000 in the United States and in 1968-1969, the "Hong Kong Flu" killed 34,000.

Healthcare utilization in the United States has changed markedly in recent years. Improved care has led to trends in increased outpatient care and decreased hospital stays. Managed care has also led to changes in utilization of healthcare resources. These trends have resulted in fewer hospital beds and patients who tend to be sicker. It is expected that the demands on healthcare facilities and resources will be great during an influenza pandemic.

ISSUES

There's no simple answer to the question of how serious the next pandemic might be. It depends on how virulent and transmissible the virus is. Since our world today is vastly more populated than it was during previous pandemics, and people travel the globe with ease, the spread of a next pandemic could be more rapid than that of previous pandemics.

CDC estimates that the next pandemic could cause between 89,000 and 207,000 deaths, between 314,000 and 733,000 hospitalizations, and between 18 million and 42 million outpatient visits. Morbidity and mortality patterns during a pandemic differ from those seen during non-pandemic years when primarily the elderly and persons with a compromised immune system are most at risk for serious disease and death. During the three pandemics of the 20th century, a substantial amount of the total mortality occurred among persons less than 65 years of age who would not be considered high risk during non-pandemic years. One of the great challenges of responding to an emerging pandemic will be to plan for the use of limited health care resources. For planning, communities should consider that the demand for healthcare resources would vary, depending on where the community is within the epidemic cycle.

GUIDELINES

Institution-level Guidelines

These guidelines were created in order to assist health care institutions to maximize staffed beds and resources available during an influenza pandemic. The greatest challenge is expected to be the management of high census in the face of reduced professional, ancillary, and housekeeping staff. Many hospitals already have high census protocols and emergency preparedness plans that may be adapted to pandemic planning. Those plans should be updated with special consideration given to the following:

Staffing: Take steps to reduce staff absenteeism during a pandemic.

1. When vaccine becomes available, sponsor local immunization programs for all staff members, physicians and their families, and other at-risk members of the community.
2. Ensure that the facility's time-off policies and procedures adequately consider staffing needs in periods of clinical crisis. Facility policies and employee union contracts should incorporate language that allows flexibility to achieve adequate staffing during a

pandemic. Unplanned staff or family member illness and previously granted vacation request may complicate adequate staffing.

3. Consider or expand hospital-sponsored sick care services for hospital staff children.
4. Within reasonable limits of clinical competency, consider use of registered nurses and other health care providers serving in administrative positions to provide patient care.
5. Preferentially use immunized staff to care for those with suspected or confirmed influenza infection.

Discharge: Ensure expeditious patient discharge.

1. Consider appointment of a triage officer to manage patient flow. Utilization review activities have increased importance during a pandemic, when normal continuity of care may be disrupted because of staffing shortages and turnover due to illness.
2. Ensure that the facility has effective rules for expediting patient discharge during periods of anticipated high demand. These rules might include allocation of a sufficient number of triage physicians and nurses to the appropriate services and procedures for discharge and transfer of patients to home, a skilled nursing facility, or other facilities.
3. Review guidelines and policies allowing expeditious transfer of patients between units, especially from critical care units, when indicated.
4. Develop transportation plans and policies to expeditiously transport discharged patients home or to other facilities.
5. Consider creating a patient discharge holding area or discharge lounge to free up bed space.

Emergency Department: Ensure that the Emergency Department is prepared for high patient volume.

1. Pre-plan space needs for flexible use of alternative space. Urgent care or fast track areas in or adjacent to the ED may need to be converted to patient treatment areas.
2. Review policies and procedures addressing adequate physicians, nurses and ancillary staff in the ED and critical ancillary areas.
3. Consider appointment of a triage officer to manage patient flow, including appropriate patient referral to other clinics within the facility or to local physicians' offices or nontraditional care settings when ED care is not required.
4. Consider spatial separation in waiting room of potentially influenza-infected patients.

Elective Procedures: Review policies for admitting and scheduling elective procedures and consider how and when to implement contingency plans such as limiting elective admissions and surgery.

1. Elective utilization of health care facilities should be limited as much as possible during a pandemic. In addition to allowing re-distribution of staff and equipment, reducing the number of elective visits to health care facilities may decrease a person's exposure to influenza infected patients receiving care in the facility and may also reduce the risk of influenza infection complications in these patients. Consideration should be given to performing any necessary surgeries in a surgical ambulatory care center to reduce the likelihood of patient exposure to influenza infected patients receiving treatment in facilities providing medical care.
2. The need for home health care visits may increase during a pandemic. When feasible, however, the number of visits to a patient's home and the number of homes visited should be limited to reduce the risk of introducing influenza to the home care patient who is likely to be at high risk of complications. Home health workers, home health patients, care providers in the home should receive influenza vaccine annually and should receive the pandemic strain vaccine once it is available.

3. Many persons are dependent on certain health care procedures or treatments (e.g., dialysis) that must continue during a pandemic. It is especially important in these situations that both the health care worker and the patient receive annual influenza vaccine and that pandemic strain vaccine be administered when it is available.

Equipment/Supplies: Plan for the limited availability and increased need for allocation of equipment and supplies such as respirators, gurneys and supply carts within the facility and for potential disruption in the normal delivery of supplies and repair services.

Patient Placement: Isolation plans for use during a pandemic should be developed in advance. Under ideal circumstances, patients with suspected or diagnosed influenza should be in a private room. Special ventilation has been recommended as well although efficacy studies for reducing influenza transmission is lacking. During a pandemic, private rooms and rooms with special ventilation are unlikely to be available and containment of infection is likely to be difficult. Consideration should be given to cohorting patients with active confirmed or suspected influenza infection. Isolation procedures for other pathogens, including use of a private room, should continue to be utilized.

The period of greatest communicability of inter-pandemic influenza is the first 3 days of illness but the virus can be shed before onset of symptoms and up to seven or more days after illness. It is possible that more prolonged shedding could occur with pandemic influenza since the immune system would not have prior experience with related strains. It is also possible that prolonged shedding can occur in young children and immunodeficient patients. Therefore, all influenza specific bed management measures should be maintained for at least 7 days after onset of illness or longer if symptoms persist.

See Guidelines for Infection Control for more detail on prevention of the spread of influenza – see pages 45-51.

Community-level Guidelines

A community-wide coordinated response will be essential. Communication with local physicians, physician's groups, urgent care centers, community clinics, and home health care agencies is essential to develop joint contingency plans and to determine their availability during peak periods. Planning should involve healthcare facilities, EMS, and other first responders to ensure that there is coordinated distribution of scarce critical resources.

In order to effectively respond to an influenza pandemic, communities will need to coordinate many health care related activities. Because so many different perspectives will need to be considered during this process, it is recommended that a Community Health Care Task Force be created that engages all the necessary parties. The Task Force should include representatives from hospitals, infection control specialists, physician groups, the public health sector, home health care, and emergency response groups.

Roles of the Task Force: The Task Force should be responsible for coordinating health care activities from a community perspective during a pandemic. The following are suggestions of activities the Task Force should consider.

1. Working with the local health department to issue public health advisories as needed regarding the pandemic crisis and the use of the emergency department (ED) vs. clinics and urgent care centers.

2. Research and define community regulations pertaining to crisis management, the responsibilities of hospitals and other health care facilities, the responsibilities of the public health sector, and any other regulations relevant to pandemic-type situations.
3. Work with hospitals to ensure that adequate protocols for bed management across facilities. These protocols should address how and when the decision will be made to utilize alternative facilities for patient care (see *Guidelines for Use of Non-Traditional Settings* – pp 39-40).
4. Initiate a tracking system for monitoring the impact of the pandemic on hospitals in the community. Ideally the tracking system would be in place prior to a pandemic. This tracking system should collect the following types of data:
 - Number of available ICU beds (adult and pediatric);
 - Number of available medical ward beds (adult and pediatric);
 - Number of available ED beds (total);
 - Number of available ED monitored beds;
 - Number of available ED non-monitored beds;
 - Number of patients in the ED waiting to be seen;
 - Number of patients waiting for inpatient beds (in ED, clinic, recovery I etc);
 - Average waiting time for non-ambulatory patients to be seen in ED;
 - Average waiting time for ambulatory patients to be seen in ED;
 - Number of hospitals on ED diversion*, and;
 - Morgue capacity.

*The Task Force is encouraged to consider the value of allowing ambulances to divert from their emergency departments when it is obvious that each hospital in the community is equally impacted by the pandemic. It may be necessary to reevaluate this issue every 24 hours during the crisis.

5. Work with hospitals that are experiencing unusually heavy patient volumes by giving transfer priority when:
 - Hospital is in danger of exceeding bed capacity;
 - Hospital has already performed "in-patient triage" in order to free up as many ICU and ward beds as possible;
 - Hospital is currently on emergency department diversion;
 - Hospital has implemented procedures to obtain additional staff, and;
 - Hospital is unable to provide/obtain needed medical equipment or services due to overwhelming conditions.
6. Formulate a plan for expediting the patient transfer between hospitals.
7. When a hospital has exhausted its medical supplies, a mechanism should be in place for allocating urgently needed equipment (e.g. ventilators) and pharmaceuticals (vaccines, antivirals, antibiotics, etc). Since several hospitals in the community are likely to concurrently experience this problem, it is recommended that one distribution center be responsible for coordinating requests for additional equipment and supplies.
8. Formulate a plan to coordinate the transport of supplies from one hospital to another when appropriate.
9. Permit ambulances to honor ED diversion and transport patients to the next closest facility provided that it is within 15 minutes of an open facility.
10. Develop a plan for management of bodies when morgue capacity has been exceeded.
11. Develop a plan for continuity of home health care services and the delivery of medical supplies to home health care patients.

F. INFECTION CONTROL

Guidelines for Prevention and Control of Pandemic Influenza A in Healthcare Institutions

BACKGROUND

Influenza is spread from person to person primarily by inhalation of small particle aerosols and large droplet infection. Although the extent of transmission by direct contact or contact with articles recently contaminated by nasopharyngeal secretions is not known, these mechanisms are not the primary mode of transmission (1). During community outbreaks of influenza, the highest attack rates tend to occur among school-age children. Secondary spread to adults and other children within the family is common. The attack rates depend in part on immunity developed by previous experience (either by natural disease or immunization) with the circulating strain or a related strain. Antigenic shift, reassortment in an animal host, or major drift in the circulating strain may result in widespread epidemics or even pandemics.

In temperate climates, seasonal epidemics usually occur during the winter months and, within a community, peak within 2 weeks of onset and last 4 to 8 weeks or longer. However, isolated outbreaks may occur year-round. Activity of more than one type or subtype of influenza virus in a community may be associated with a prolongation of the influenza season to 3 months or more. Influenza is highly contagious, especially among institutionalized populations. Patients are most infectious during the 24 hours before the onset of symptoms and during the most symptomatic period, which generally lasts 3-5 days after the onset of illness. Detectable viral shedding in the nasal secretions usually ceases within 7 days of the onset of illness but can be prolonged in young children and immunodeficient patients (2).

During community influenza outbreaks, admitting patients infected with influenza to hospitals has led to nosocomial transmission of the disease. Unimmunized healthcare workers and visitors can also contribute to nosocomial influenza spread in acute care hospitals and long-term facilities. Transmission of influenza among medical staff causes absenteeism and considerable disruption of health care. In addition, influenza outbreaks have caused morbidity and mortality in nursing homes. In a recent study of long-term care facilities with uniformly high patient influenza vaccination levels, patients in facilities in which greater than 60% of the staff had been vaccinated against influenza experience less influenza-related mortality and illness, compared with patients in facilities with no influenza-vaccinated staff (3). Further information and updates on influenza can be found at www.cdc.gov/ and www.apic.org/.

ISSUES

There's no simple answer to the question of how serious the next pandemic might be. It depends on how virulent and transmissible the virus is. Children are particularly important for spread of infection. Since our world today is vastly more populated than it was during previous pandemics, and people travel the globe with ease, the spread of a next pandemic could be more rapid than that of previous pandemics.

Infection control practices both in the community and in healthcare settings will present special challenges in the event of a pandemic. Influenza virus is highly contagious and persons who are clinically or subclinically infected can transmit virus to persons at high risk for influenza complications. Preventing and controlling nosocomial infection will be an important factor in reducing the spread of influenza in a pandemic. Measures other than vaccination and chemoprophylaxis are recommended for controlling nosocomial influenza outbreaks. These measures include interventions for preventing and controlling nosocomial influenza through prompt

recognition, detection, isolation and cohorting of confirmed and suspected cases, and implementation of droplet precautions.

General Principles of Routine Infection Control

The Society for Healthcare Epidemiology of America (SHEA) states three goals for infection control and prevention programs: protect the patient; protect the healthcare worker, visitors, and others in the healthcare environment; and accomplish the previous two goals in a cost-effective manner, whenever possible (4). These goals are germane to any patient care setting including acute care hospitals, long term care facilities, nursing homes, ambulatory care centers, outpatient surgical facilities, rehabilitation centers, alternative care centers, and home-care programs. Each type of health care organization may employ a different means of achieving these goals based on their needs, circumstances, and federal, state, and local regulations (5).

The Centers for Disease Control and Prevention and the Healthcare Infection Control Practices Advisory Committee (HICPAC) have developed guidelines on prevention of nosocomial/healthcare associated infections that are based on the latest epidemiologic information on transmission of infection in hospitals (5). These guidelines include "*Standard Precautions*" that are to be followed when caring for all patients, regardless of their diagnosis, and "*Transmission Based Precautions*" to be followed when a patient is known or suspected to be infected or colonized with an epidemiologically important pathogen.

Standard Precautions address the importance of hand washing before and after caring for a patient; use of gloves, masks, eye protection, face shields, and gowns when splashes or sprays of blood, body fluids, secretions or excretions are possible; cleaning of patient-care equipment, the patients physical environment, and soiled linen; precautions to reduce the possibility of healthcare worker exposure to blood borne pathogens; and patient placement.

Transmission Based Precautions describe infection control measures, above and beyond *Standard Precautions*, that should be taken based on the mode of transmission of the pathogen causing infection. There are three routes of transmission that play a significant role in nosocomial infections: contact, droplet, and airborne. All of these routes of transmission are relevant to influenza and should be incorporated into influenza control, including during a pandemic. Further details regarding Standard Precautions and Transmission Based Precautions can be found in the "*Guideline for Isolation Precautions in Hospitals*" (5).

- CONTACT TRANSMISSION, the most frequent mode of transmission of nosocomial infections, occurs when there is direct body surface-to-body surface contact and transfer of microorganisms from an infected or colonized person to a susceptible host or when a susceptible host comes in contact with a contaminated intermediate object such as a health care workers' hands or a contaminated instrument.
- DROPLET TRANSMISSION occurs when an infected person generates large droplets containing microorganisms by talking, coughing, or sneezing and these droplets move through the air and come in contact with a susceptible host's conjunctivae, nasal mucosa, or mouth. When caring for patients with suspected or confirmed influenza, droplet precautions should be followed.
- AIRBORNE TRANSMISSION is similar to droplet transmission but in this case, the particles from the infected or colonized person are much smaller and therefore can remain in airborne for long periods of time and can be widely carried by air currents to susceptible hosts some distance away.

General Principles of Pandemic Influenza Infection Control in Health Care Organizations

As a part of pandemic planning, communities and health care organizations will need to have in place special guidelines for infection control during a pandemic that take into account the

likelihood that a high proportion of the population will be affected and that secondary infections are a major source of morbidity and mortality with influenza virus infection.

The local health department will inform communities and healthcare institutions when pandemic influenza activity is anticipated in the community so that healthcare institutions can prepare to institute pandemic influenza infection control measures. These measures will likely differ from routine influenza infection control procedures because it can be assumed that risk of transmission is high, immunity within the population is low, that an increased number of persons will be seeking medical care, and that resources traditionally used for infection control may be in short supply. Each recommendation discussed below includes what should be done in an ideal situation (i.e., what is recommended for routine influenza when supply shortages are not an issue) as well as alternative measures to consider should the ideal not be possible. No distinction has been made based on the site at which care is given (e.g., hospital, physician's office, long term care facility, etc.) with the presumption that health care professionals in each setting will adopt the highest level of infection control possible in their circumstances.

GUIDELINES

Staff Education

Educate staff about the epidemiology and prevention of influenza. It will be particularly important that staff understand the dynamics of influenza infection spread and understand the impact of fear and panic. This should be an annual event and should be repeated and geared toward a wider audience when a pandemic is expected. Additional methods of education including teleconferencing, mass mailing, etc. may be considered. Extra effort should be made to ensure that all staff participates in this program including nurses who work on a part-time basis, other staff who may not routinely care for patients but might be required to do so in the event of a pandemic, volunteers, and non-patient care staff (e.g., administrative, medical records, and food service personnel).

Handwashing and Gloving

Decreasing the risk of transmission of microorganisms in health care settings, accomplished primarily by hand washing is a major component of infection control. Hands should be washed after touching blood, body fluids, secretions, excretions, and contaminated items, whether or not gloves are worn. Hand washing with plain soap or detergent for at least 10-15 seconds under running water is an effective method of removing soil and transient microorganisms. If sinks for hand washing are not readily available, alcohol-based agents can be used (6).

Clean, non-sterile, disposable gloves should be worn when touching blood, body fluids, secretions, excretions and contaminated items. Gloves should be removed after use and before touching any non-contaminated items or touching another patient, and hands should be washed immediately with soap and water or an antiseptic handrub. Due to the significant number of health care workers with latex hypersensitivity, other strategies should be available such as non-latex products alone or in combination with latex gloves, powder-free latex gloves, "low protein" latex gloves, and vinyl gloves (1).

During a pandemic, it is possible that health care institutions of all types may become overwhelmed and plans are underway for determining which alternative sites might be available to provide healthcare, who would be treated there, and how this would be carried out (see "Guidelines for Use of Non-Traditional Settings" – pages 39-40). These alternative sites may not have sinks as readily accessible as traditional health care settings therefore consideration should be given to using detergent-containing towelettes to cleanse hands of soil and organic material followed by alcohol-based hand rubs for antiseptics following hand contact with blood or body secretions (6). The protocol (as indicated in standard precautions) for glove use should remain unchanged regardless of the setting in which medical care is provided.

Masks

Ideally, to be consistent with droplet precautions, health care workers and visitors should wear masks when they are within 3 feet of the patient and the patient should wear a mask when being transported. However, during a pandemic this may not be practical and health care institutions may want to consider limiting the use of masks for containment of other pathogens. Studies demonstrating the efficacy and effectiveness of wearing masks to reduce influenza transmission are lacking.

Diagnostic Procedures

During a pandemic, it is likely that most cases of influenza will be caused by the pandemic strain. Data from the 1957 and 1968 pandemics show that the previously circulating influenza strain disappeared from human circulation when the pandemic strain virus emerged. Therefore, once a pandemic occurs and the pandemic strain is identified, continued use of routine diagnostic testing for viral strain may not be necessary for clinical care. However, the CDC may ask for isolates to be sent to them for viral strain characterization. Hospitals may want to consider developing an algorithm for the use of testing for clinical care.

Vaccine

During interpandemic years, the Advisory Committee on Immunization Practices recommends annual influenza vaccination for persons aged six months or older who are at increased risk for complications of influenza due to age or underlying condition and for health care workers and close contacts of high-risk patients who, if unvaccinated, may transmit influenza virus to high risk persons (7). Influenza vaccination may also be considered for persons aged 6 months or older who are not high risk wishing to reduce the chance of being infected with influenza. During a pandemic, immunization of the entire population with a pandemic strain vaccine before the virus reaches the United States would be ideal. However, it is likely that the virus will be identified in the United States before enough vaccine for the entire population has been produced. If this is the case, it will be necessary to prioritize distribution of vaccine in such a way as to reduce morbidity, mortality, and social disruption. Health care institutions should consider in advance who are the most essential staff and develop plans to immunize them in accordance with State and local pandemic plans.

Antiviral Agents

During inter-pandemic years, as well as during a pandemic, antiviral agents should play a primarily adjunctive role to vaccine in control of influenza. The Advisory Committee on Immunization Practices has published recommendations for antiviral use during interpandemic years (7). Guidelines for utilization of these drugs during a pandemic will likely differ from those in use during routine periods of influenza activity. The importance of antiviral agents may be increased in influenza treatment and prevention during early stages of a pandemic when it is likely that only limited supplies of vaccine will be available. The use of antiviral agents should also consider the potential difficulties associated with widespread use such as drug resistance, side effects, liability, costs, compliance, and supply.

See "*Guidelines for Antiviral Strategies*" - pages 33-38 - for more detail on the administration of vaccine during a pandemic.

Bed Management

Isolation plans for use during a pandemic should be developed in advance. Under ideal circumstances, patients with suspected or diagnosed influenza should be in a private room. The use of special ventilation in rooms of patients for whom influenza is suspected or diagnosed has been recommended previously (8). However, during a pandemic this may not be practical as it is currently impractical during seasonal epidemics. Studies demonstrating the efficacy and

effectiveness of special ventilation to reduce influenza transmission are lacking. During a pandemic, private rooms are unlikely to be available and containment of infection is likely to be difficult. Consideration should be given to cohorting patients with active confirmed or suspected influenza infection. Isolation procedures for other pathogens, including use of a private room, should continue to be utilized (5). Use of dedicated staff who has been immunized should be considered for care of those with suspected or confirmed influenza infection. If vaccine is unavailable, consideration of antiviral prophylaxis for dedicated staff should be considered.

The period of greatest communicability of inter-pandemic influenza is the first 3 days of illness but the virus can be shed before onset of symptoms and up to seven or more days after illness. It is possible that more prolonged shedding could occur with pandemic influenza since the immune system would not have prior experience with related strains. It is also possible that prolonged shedding can occur in young children and immunodeficient patients. Therefore, all influenza specific bed management measures should be maintained for at least 7 days after onset of illness or longer if symptoms persist.

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

During a pandemic, high census is likely to represent a management problem for all healthcare facilities. Advance planning for high census will be important. Communities will need to have in place community wide bed management plans and plans for use of alternate (non-traditional) sites for provision of medical care.

See "*Guidelines for Non-Traditional Settings*" - see pages 37-38 - that address these issues in more detail. See "*Guidelines for Resource Management*" for more detail on the utilization of health care resources during a pandemic – pages 39-40.

Cleaning, Disinfection, and Sterilization

The most important mode of transmission of influenza is via aerosolized or droplet transmission from the respiratory tract of infected persons. Transmission of droplets by direct contact is less important. Influenza is highly infectious and can spread rapidly in healthcare facilities by infected healthcare personnel, patients, and visitors. Secondary bacterial infection is an important cause of complications. While vaccination is the most important method for preventing the spread of influenza, appropriate use of disinfectants should be followed. Recommended guidelines are available by the Association for Professionals in Infection Control and Epidemiology (APIC) (9). No additional recommendations specific to influenza are indicated.

Elective Utilization of Health Care Facilities

Elective utilization of health care facilities including acute care hospitals, ambulatory surgical centers, dialysis centers, and home care should be limited as much as possible during a pandemic. Reducing the number of elective visits to health care facilities and elective procedures will decrease a persons likelihood of contracting influenza due to exposure to influenza infected patients receiving care in the health care facility. Reducing the number of elective procedures will also reduce the number of persons at increased risk of influenza infection complications due to a compromised immune system as a result of an invasive

procedure. Performing fewer elective procedures will also allow a re-distribution of supplies and personnel to care for those ill with influenza and its complications. Health care facilities should develop criteria and guidelines for appropriate patient utilization including the consideration of a phone triage system.

Acute Care Hospitals: The Centers for Disease Control and Prevention's *Guideline for Prevention of Nosocomial Pneumonia* suggest that during severe outbreaks (of which a pandemic would qualify) the following measures be considered: curtailment or elimination of elective admissions, both medical and surgical, and restriction of cardiovascular and pulmonary surgery (10).

Ambulatory Surgical Centers: Consideration should be given to closing ambulatory surgical centers. If these Centers remain open, patients should be screened for influenza like illness prior to surgery to reduce the risk of the patient transmitting influenza to others and suffering from complications of influenza infection due to a suppressed immune system. Health care workers should be vaccinated in order to prevent influenza virus transmission to patients while in the Center.

Home Care: Unvaccinated home health care workers should limit the number of visits they make to each patient's home and to the number of homes visited as much as possible in order to reduce the risk of introducing influenza to the home care patient. Home health workers and home health patients should receive influenza vaccine annually and should be administered the pandemic strain vaccine once it is available. Many persons are dependent on certain health care procedures or treatments such as dialysis, which must continue during a pandemic. In these situations it is especially important that both the health care worker and the patient receive annual influenza vaccine and that pandemic strain vaccine be administered once it is available.

See "*Guidelines for Resource Management*" – pages 41-44 - for more detail on the utilization of health care resources during a pandemic.

Health Care Workers with Influenza-Like Illness

As part of the health care organization's responsibility to implement measures that reduce transmission of infection, it may be necessary to exclude personnel from patient contact if they have symptoms of febrile upper respiratory tract infection suggestive of influenza (1,10). This is especially critical if the health care worker cares for severely immunocompromised patients including neonates, young infants, and patients in the intensive care unit. To reduce the likelihood of excluding personnel from duty, all health care workers should be strongly encouraged to receive annual influenza vaccine and receive pandemic strain vaccine once it is available. Consideration may also be given to chemoprophylaxis with antiviral agents if vaccine is not available.

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

Visitors

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

Outbreak Control

Influenza outbreaks in healthcare facilities can occur whenever influenza exists in the community. Vaccination remains the most important measure to prevent the spread of influenza in healthcare facilities. However, incomplete vaccination, less than 100% vaccination efficacy, and the introduction of infected people into the facilities can lead to influenza outbreaks. The factors that can lead to an outbreak are expected to be intensified during a pandemic. Active surveillance programs can reduce or prevent outbreaks. Prompt recognition of influenza infection needs to be followed by the initiation of infection control measures. It is recommended that healthcare facilities develop and implement an influenza outbreak control plan. Steps that should be considered in an outbreak control plan are:

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

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XII. TABLES

Table 1. Distribution of Component Activities Over Pandemic Phases

COMPONENT ACTIVITY	INTERPANDEMIC	NOVEL VIRUS ALERT	PANDEMIC ALERT	PANDEMIC 1	PANDEMIC 2	Second Wave	Pandemic Over	
<p>SURVEILLANCE</p> <p>Laboratory-based surveillance, with isolation of the influenza virus and the analysis of its antigenic structure, and disease-based surveillance, the epidemiology and clinical aspects of the disease are crucial for detecting a novel virus strain, as well as for aiding in decision-making. These activities should be conducted in all phases of the pandemic.</p>	Maintain/expand routine sentinel system							
	Institute ILI aberration detection							
	Implement nursing home outbreak reporting							
	Consider school & work absenteeism							
	Develop mortality (ILI & pneumonia) system							
	Develop unusual deaths reporting							
	Consider a hospital-based respiratory illness system							
	Explore a hospital beds-filled & beds-available system							
	Unusual virus isolates to the state lab							
	Acquire CDC reagents for novel virus id							
	Implement mortality systems							
	Consider military traveler illness system							
	Review of activities							
	Activate hospital beds system							
	Develop contingency plan for lab resources							
	Explore international port ILI system							
					Verify activation of special surveillance systems			
					Analyze incoming data			
					Consider special studies to characterize pandemic			
					Implement international port ILI system			
					Monitor WHO and CDC data			
						Assess all activities		
							Summarize data/findings	

Table 1. Distribution of Component Activities Over Pandemic Phases continued.

COMPONENT ACTIVITY	InterPandemic	Novel Virus	Pandemic Alert	Pandemic 1	Pandemic 2	Second Wave	
<p>VACCINE DELIVERY</p> <p>Vaccination is the best way to prevent influenza illness. However, a pandemic will involve a novel strain, for which it may take 6 months to produce an appropriate vaccine. Depending upon when and where the strain is identified, vaccine may or may not be available for effective use.</p>	Maintain routine distribution system						
	Develop pandemic distribution system						
	Develop vaccine priority plan						
	Identify existing vaccine storage capability						
	Identify contingency vaccine storage						
	Identify mass immunization assistance						
	Promote influenza and pneumococcal vaccinations						
	Ensure vaccine adverse events are reported (VAERS)						
	Prepare Central Pharmacy for vaccine distribution						
	Monitor novel virus vaccine development						
	Ship vaccine if available						
	Network with local partners to establish mass immunization						
	Modify distribution system if needed						
							Assess supply status
						Assess vaccine delivery response	

Table 1. Distribution of Component Activities Over Pandemic Phases continued.

COMPONENT ACTIVITY	InterPandemic	Novel Virus Alert	Pandemic Alert	Pandemic 1	Pandemic 2	Second Wave	Pandemic Over	
<p>COMMUNICATIONS</p> <p>To help control the spread of influenza illness and the spread of panic in the event of a pandemic, it is essential to establish a flow of accurate and timely information between state agencies, local health departments, and the community.</p>	Provide pandemic influenza educational information							
	Assist establishment of rapid means of communication between CHDS and community							
	Develop templates for pandemic news releases							
	Maintain current a list of CHD media reps							
	Notify communities of novel virus alert							
	Prepare public Q&A information releases							
	Meet with media reps							
	Review electronic communications capabilities							
	Post weekly summary data to web site							
	Communicate plan of action							
	Provide vaccine delivery and surveillance updates							
	Update media sources							
	Coordinate communications with ESF14							
	Hold daily news conferences							
								<p>Withdraw from SEOC functions</p> <p>Work with others to put pandemic into historical perspective</p>

Table 1. Distribution of Component Activities Over Pandemic Phases continued.

COMPONENT ACTIVITY	InterPandemic	Novel Virus Alert	Pandemic Alert	Pandemic 1	Pandemic 2	Second Wave	Pandemic Over
EMERGENCY MANAGEMENT An influenza pandemic is likely to pose unique challenges that may not be considered in the state all hazard emergency management plan. The pandemic will most likely be widespread, involving many geographical areas at once, and severe illness, with disruption of community services and order.		Maintain a state of preparedness					
		Identify communication links with other agencies expected to be involved					
			Alert State Coordinating Officer				
			ID response personnel and resources				
			Initiate statewide health taskforce				
				Plan for activation of EOC			
				Monitor DOH partner actions			
					Activate EOC and assume response responsibilities		
						Continue response phase	
							Return to normal operational levels Transition EOC responsibility back to Interpandemic mode

TABLE 2. Timetable in months for Northern Hemisphere influenza vaccine production during the interpandemic period

-3	-2	-1	01	02	03	04	05	06	07	08	09	10	11	12	
			EGGS												
			VIRUS SEED												
			MONOVALENT VACCINE												
			VACCINE BLENDING and TESTING												
			PACKAGING and BATCH RELEASE												
			VACCINE DISTRIBUTION												
			VACCINE USE												

Key Events

			WHO Rec ¹					Batch Release Tests (2 weeks/test)						
						Licensing (2-3 weeks)								
			Hgr Prod ² (1-2 months)			SRD Pot ³ (1-2 months)								

Possible Pandemic Timeline

Phase 0, Level 1														
Phase 0, Level 2														
Phase 0, Level 3														
Phase 1														
Phase 2														
Phase 3														

Rec¹ = WHO recommendation of vaccine strains

Phase 0, level 2 = Novel Virus Alert

Hgr Prod² = production of high growth reassortants
SRD Pot³ = production of single-radial-diffusion potency reagents
Phase 0, Level 1 = new influenza strain in a human

Phase 0, Level 3 = human transmission confirmed
Phase 1 = onset of pandemic
Phase 2 = Pandemic
Phase 3 = end of first wave