Pandemic Influenza Planning Document

Alabama Department of Public Health

Emergency Operations Plan

10/4/2005

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I. Background

This emergency preparedness planning document addresses how the Alabama Department of Public Health (ADPH) responds to pandemic influenza through its Emergency Operations Plan (EOP). This document will be periodically reviewed and updated by the ADPH Executive Planning Committee to ensure that information contained within the document is consistent with current knowledge and changing infrastructure. The Executive Planning Committee will consist of, but not limited to, the Incident Command System (ICS) designated officers and chiefs.

Before, during, and after a pandemic influenza outbreak, ADPH has a responsibility to ensure the continuation and delivery of essential public health services while providing for the emergency needs of the population. The appendices of this document contain specific guidance and handouts for pandemic preparedness.

II. Pandemic Influenza Phases

The World Health Organization (WHO) and the CDC have defined phases of pandemic influenza in order to assist with planning and response activities in states. Identification and declaration of the stages outlined in Table 1 will be done at the national level. Refer to Appendices C, D, and E for a listing of activities that will be conducted during each phase of pandemic influenza.

Table 1. Pandemic Influenza Phases

Phase	Definition
Novel Virus Alert	A novel virus is detected in one or more humans and there is little or no immunity in the general population. There is potential for a pandemic, but it is not inevitable.
Pandemic Alert	The novel virus demonstrates sustained person-to-person transmission and causes multiple cases in the same geographic area.
Pandemic Imminent	The novel virus causes unusually high rates of morbidity and/or mortality in multiple, widespread geographic areas.
Pandemic	Further spread of the virus occurs with involvement of multiple continents.
Second Wave	Epidemic activity recurs within several months following the initial wave of infection.
Pandemic Over	Successive pandemic waves cease and a return of the more typical influenza cycle occurs.

III. Assumptions

Advance planning for Alabama's emergency response could save lives and prevent substantial economic loss. For planning purposes, the pandemic phase is projected. If the situation does not fully develop to that level, the response can be adjusted.

The following assumptions are made:

1. Although pandemic influenza strains have emerged mostly from areas of Eastern Asia, variants with pandemic potential anywhere.
2. Alabama and its neighboring jurisdictions may be affected simultaneously.

3. A pandemic will pose significant threats to health and non-health infrastructure due to widespread absenteeism.
4. Effective preventive and therapeutic measures, including, vaccines and antiviral medications will be in short supply.
5. There may be critical shortages of health care resources, such as, staffed hospital beds, mechanical ventilators, morgue capacity, and other resources.
6. The annual influenza vaccination program, supplemented by pneumococcal vaccination when indicated, will remain a cornerstone of prevention.
7. Surveillance of influenza disease and virus will provide information critical to an effective response.
8. ADPH will take the lead in distributing influenza vaccine. Health departments will work in partnership with health care providers to facilitate distribution.
9. The vaccine maybe administered under an Investigational New Drug (IND) protocol.
10. An effective response to pandemic influenza will require coordinated efforts of a wide variety of organizations, including, public, private, health, and non-health related.
11. Infection control measures, such as: isolating the sick, screening travelers, and reducing the number of public gatherings, may help to slow the spread of influenza early in the pandemic period.
12. Federal and State declarations of emergency will change legal and regulatory aspects of providing public health services during a pandemic.

According to CDC's FluAid calculations, Alabama can expect the following based on population, the number of potential deaths, hospitalizations, outpatient visits, and impact on resources (http://www2.cdc.gov/od/fluaid/default.htm):

POPULATION (NUMBERS AND DISTRIBUTION)

	0-18 yrs	19-64 yrs	65+ yrs	Total	% Total
Non-high risk	1,003,119	2,299,621	336,585	3,639,325	84.26
High risk	68,589	386,851	224,389	679,829	15.73
Totals	1,071,708	2,686,472	560,974	4,319,154	100

DEATHS (NUMBER OF CASES)

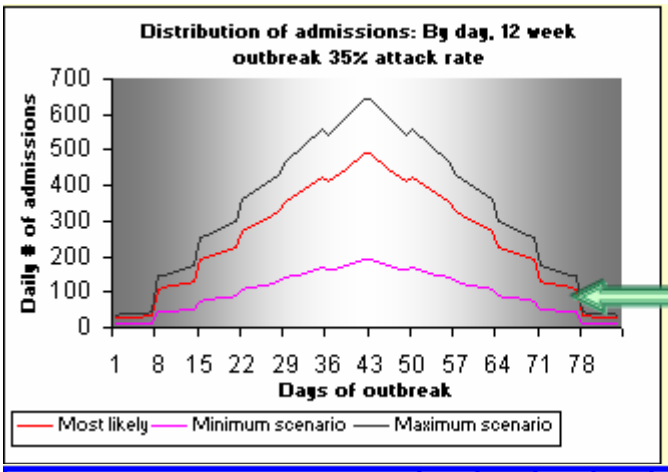
Gross attack rates				Distribution by age group (% of total): Most likely		
	15 %	25 %	35 %		% High Risk	%Total
0-18 yrs most likely	**17**	**28**	**39**	**0-18 yrs**	0	1
minimum	10	16	23			
maximum	232	387	542			
19-64 years most likely	**841**	**1,401**	**1,961**	**19-64 yrs**	41	47
minimum	120	200	281			
maximum	1,578	2,630	3,682			
65+ yrs most likely	**920**	**1,533**	**2,146**	**65+ yrs**	42	52
minimum	892	1,487	2,081			
maximum	1,141	1,901	2,662			
TOTAL: Most likely	**1,778**	**2,962**	**4,146**	**Totals**	**83**	100
Total minimum	1,022	1,703	2,385			
Total maximum	2,951	4,918	6,886			

HOSPITALIZATION (NUMBER OF CASES)						
Gross attack rates				**Distribution by age group (% of total): Most likely**		
	15 %	**25 %**	**35 %**		**% High Risk**	**% Total**
0-18 yrs most likely	**300**	**500**	**700**	**0-18 yrs**	1	4
minimum	148	246	345			
maximum	1,259	2,099	2,939			
19-64 yrs most likely	**4,966**	**8,276**	**11,586**	**19-64 yrs**	10	64
minimum	727	1,531	2,144			
maximum	5,421	9,035	12,649			
65+ yrs most likely	**2,452**	**4,087**	**5,722**	**65+ yrs**	20	32
minimum	1,753	2,922	4,090			
maximum	3,100	5,167	7,234			
TOTAL: Most likely	**7,718**	**12,863**	**18,008**	**Totals**	**31**	100
Total: minimum	2,628	4,699	6,579			
Total: maximum	9,780	16,301	22,822			

OUTPATIENT VISITS (NUMBER OF CASES)						
Gross attack rates				**Distribution by age group (% of total): Most likely**		
	15 %	**25 %**	**35 %**		**% High Risk**	**% Total**
0-18 yrs most likely	**95,078**	**158,463**	**221,848**	**0-18 yrs**	3	27
minimum	79,430	132,383	185,337			
maximum	110,725	184,542	258,359			
19-64 yrs most likely	**207,284**	**345,473**	**483,663**	**19-64 yrs**	8	60
minimum	148,831	248,051	347,271			
maximum	316,386	527,310	738,233			
65+ yrs most likely	**43,546**	**72,576**	**101,606**	**64+ yrs**	5	13
minimum	41,091	68,486	95,880			
maximum	67,597	112,662	157,727			
TOTAL: Most likely	**345,908**	**576,512**	**807,117**	**Totals**	**16**	100
Total: minimum	269,352	448,920	628,488			
Total: maximum	494,708	824,514	1,154,319			

IMPACT ON RESOURCES			
Gross attack rates			
	15 %	**25 %**	**35 %**
Hospital beds:			
% capacity (most likely)	37	61	86
% capacity (maximum)	47	78	109
Outpatient visits:			
% capacity (most likely)	2	3	4
% capacity (maximum)	3	4	6
Morgue capacity:			
% capacity (most likely)	74	123	173
% capacity (maximum)	123	205	287

According to CDC's FluSurge calculator, Alabama could expect the following with regard to hospitals capacity (http://www.cdc.gov/flu/flusurge.htm):



Total Hospital Admission (most likely)	26,312
Total Death (most likely)	4,147

Influenza Pandemic Impact / Week:		1	2	3	4	5	6	7	8	9	10	11	12	13	14
Hospital Admissio	Weekly admission	209	836	1,464	2,091	2,719	3,137	3,137	2,719	2,091	1,464	836	209		
	Peak admission/day						489	489							
Hospital Capacity	# of flu patients in hospital	209	836	1,464	2,091	2,719	3,137	3,296	3,072	2,621	1,993	1,366	739		
	% of hospital capacity used	6%	24%	42%	60%	78%	90%	94%	88%	75%	57%	39%	21%		
ICU Capacity	# of flu patients in ICU	31	140	277	413	550	656	632	679	581	456	322	189		
	% of ICU capacity used	2%	9%	17%	25%	34%	40%	42%	42%	36%	28%	20%	12%		
Ventilator Capacit	# of flu patients on ventilators	16	70	138	207	275	328	346	339	291	228	161	94		
	% usage of ventilator	4%	17%	34%	51%	68%	81%	85%	84%	72%	56%	40%	23%		
Deaths	# of deaths from flu			41	166	290	415	539	622	622	539	415	290	166	41
	# of flu deaths in hospital			29	116	203	290	377	435	435	377	290	203	116	29

IV. Federal Role

An influenza pandemic will represent a national health emergency requiring coordination of response activities. As outlined in Homeland Security Presidential Directive 5 (http://www.fema.gov/pdf/reg-ii/hspd_5.pdf), the Department of Homeland Security has primary responsibility for coordinating domestic incident management and will coordinate all non-medical support and response actions across all federal departments and agencies. Health and Human Services (HHS) will coordinate the overall public health and medical emergency response efforts across all federal departments and agencies. Authorities exist under the Public Health Service Act for the HHS Secretary to declare a public health emergency and to coordinate response functions. In addition, the President can declare an emergency activating the Federal Response Plan, in accordance with the Stafford Act, under which HHS has lead authority for Emergency Support Function #8 (ESF8).

HHS response activities will be coordinated in the Office of the Assistant Secretary for Public Health Emergency Preparedness in collaboration with the Office of the Assistant Secretary for Public Health and Science and will be directed through the Secretary's Command Center. The Command Center will maintain communication with HHS agency emergency operations centers and with other Departments. HHS agencies will coordinate activities in their areas of expertise. Chartered advisory committees will provider recommendations and advice. Expert reviews and guidance also may be obtained from committees established by the National Academy of Sciences, Institute of Medicine or in other forums.

V. State Role

States are individually responsible for coordination of the pandemic influenza response within and between their jurisdictions. Specific Alabama Department of Public Health responsibilities include:

- Identify public and private sector partners needed for effective planning and response.
- Develop and enhance key components of pandemic influenza preparedness plan: surveillance, distribution of vaccine and antivirals, and communications.
- Integrate pandemic influenza planning with other planning activities conducted under CDC and Health Resources and Services' Administration (HRSA) Emergency Preparedness Cooperative Agreements.
- Coordinate with public health areas to ensure development of local plans as called for by the state plan and to provide resources, such as templates to assist in the planning process.
- Coordinate with the Alabama Department of Agriculture and Industry (ADAI) for zoonotic health issues related to pandemic influenza.
- Develop data management systems needed to implement components of the plan. Assist to public health areas and the Alabama Hospital and Nursing Home Association Preparedness Program in exercising plans.

VI. Incident Command System

During an influenza pandemic, the State Health Officer will determine when and if he needs to activate the Incident Command Structure (ICS) of ADPH. Many of the activities outlined in this document will be carried out through the appropriate ICS units as assigned by the Incident Commander. For example, the Field Treatment Unit Leader will be responsible for coordinating vaccine distribution and mass vaccination clinics. The Communicable Disease Unit Leader will be responsible for coordinating enhanced surveillance methods for the detection of influenza and for facilitating investigation. The ADPH ICS Public Information Officer will be responsible for coordinating pandemic influenza media-related activities.

This plan for responding to pandemic influenza will serve as a chapter to the ADPH Emergency Operations Plan, which addresses issues such as: command and control procedures, legal authority, intra and interagency coordination, hospital and emergency medical services coordination, infection control, security, communications, and education and training. While this document serves as a guide for specific influenza intervention activities, during a pandemic the judgment of public health leadership, based on knowledge of the specific virus, may alter the strategies that have been outlined.

During a pandemic, the Centers for Disease Control and Prevention (CDC), under the direction of the Department of Health and Human Services, will provide guidance to states on vaccine availability and distribution. The CDC will provide guidance on influenza vaccine Investigation New Drug (IND) protocols in the event that the Food and Drug Administration (FDA) has not approved the vaccine. If the vaccine is in short supply, the CDC, in conjunction with advisory committees, will provide guidance for a priority order listing of priority groups for vaccination. The priority order could be based on: the need to maintain elements of community infrastructure that are essential to carrying out the pandemic response plan; limiting mortality among high-risk groups; reducing morbidity in the general population; and minimizing social disruption and economic losses.[1]

VII. State Health Officer

Several sections within the Code of Alabama give the State Health Officer and the State Committee of Public Health (SCPH) the authority to perform certain acts to protect the health

of citizens. The SCPH and the State Health Officer will use this authority judiciously to best meet the needs of the citizens of the state as dictated by the situation.

VIII. Surveillance

Alabama's influenza surveillance system is designed to detect outbreaks of disease and identify the strains involved in order to facilitate early public health intervention. The system has three main components: passive surveillance (specifically the requirement to report "outbreaks of any kind"), active sentinel physician, school absenteeism and influenza quick test surveillance, and laboratory surveillance. Data on mortality from influenza and pneumonia are also available on a weekly basis through the federal 122 Cities Mortality Reporting System. In Alabama, the cities of Birmingham, Mobile and Montgomery participate in the reporting system.

In the event of an influenza pandemic, additional surveillance activities will be implemented, including: monitoring of hospitals for bed and emergency department capacity, collection and analysis of vaccine and antiviral adverse events data, and increased coordination of surveillance activities with neighboring jurisdictions.

A. Current Influenza Surveillance Activities

Passive Surveillance

The first component of the existing influenza surveillance system, passive surveillance, results from the requirement to report "outbreaks of any kind."

Another key indicator of influenza activity in Alabama is a marked increase of absenteeism in schools. This increase is an indicator of where influenza outbreaks are occurring in the state. One key to early detention for a pandemic influenza is monitoring of school absenteeism.

Active Sentinel Physician Surveillance

The second component of the influenza surveillance system is sentinel physician surveillance. ADPH participates in the CDC Sentinel Physician Program, where recruited private providers report the number of patients presenting to their offices with influenza-like illness (ILI) by age group; providers also report the total number of patients seen at the facility. Data are entered weekly into a secure website maintained by the CDC. The Influenza Surveillance Coordinator can view data from across the state in order to assess and classify the level of influenza activity (See Influenza Activity Levels.) Baseline incidence levels of disease are established from data collected from the first week in October through the second week in November. Ongoing data collection continues through May of the following year.

The ADPH Emergency Preparedness Medical Director suggested using big hospital emergency departments to be used as sentinel sites. Additional surveillance questions could be asked of the emergency departments, such as, how many patients were not seen? Walking sick? What were their symptoms? Traditional the average is approximately 3% in emergency departments; therefore if more than 3% of patients leave the emergency department without being seen the ED may need to be questioned.

Laboratory Surveillance

A third component of the system is laboratory surveillance. The State Clinical Laboratory (SCL) identifies influenza virus present in Alabama as either type A or B. Information on influenza strains present in the state can also be used to formulate recommendations for antiviral therapy. The SCL accepts specimens throughout the year, but sentinel physicians are particularly encouraged to send nasopharyngeal and serum specimens for examination, especially in the early and late stages of each influenza season. Specimens are then sent to the CDC for specific strain identification. During the 2004-2005 influenza season, 250 influenza specimens were collected from 26 counties. Of those collected, 40% (99 out of 250) specimens were positive for influenza.

122 Cities Mortality Reporting System

Each week, the health statistics offices of 122 cities across the nation report to the CDC the total number of death certificates filed and the number of those for which pneumonia or influenza was listed as the underlying or contributing cause of death. In Alabama, the cities of Birmingham, Mobile and Montgomery participate in the reporting system. The CDC publishes the data in its Morbidity and Mortality Weekly Report. (http://www.cdc.gov/mmwr)

Poultry Surveillance

The Alabama Department of Agriculture and Industry (ADAI) have developed a Procedure Manual for the Initial Outbreak of Avian Influenza. ADAI conducts surveillance for avian influenza by serology and by virus isolation. In 2004, ADAI tested over 91,000 chickens for avian influenza. If a positive test was discovered through screening and testing, the ADAI's State Veterinarian will contact the ADPH's Veterinarian in the Epidemiology Division. If the ADPH's BCL receives a positive human specimen for avian influenza, ADAI would be contacted immediately to assist with case investigation in the poultry population.

The Epidemiology Division is also working with Auburn University to establish a data exchange system to pass zoonotic test information. More details will be coming as the system is completed.

B. Current Influenza Activity Levels

The influenza season in Alabama typically runs from December of one year through March of the following year. Data collected through the Sentinel Physician Surveillance System are tabulated weekly. This information, along with laboratory identification, is used to monitor and define influenza activity during the flu season. The numbers do not represent all cases of influenza-like illness seen in Alabama; rather, they allow ADPH to monitor the relative levels of activity and to provide the CDC with weekly reports on the status of influenza activity in Alabama. Activity is characterized as no activity, sporadic, local, regional or widespread according to the definitions outlined in Table 2.

Table 2: Influenza Activity Levels

Activity Level	Influenza Like Illness (ILI) Activity/ Outbreaks		Laboratory data
No activity	Low	And	No lab confirmed cases
Sporadic	Not increased*	And	Isolated lab-confirmed cases
	OR		
	Not increased	And	Lab confirmed outbreak in one institution**
Local	Increased ILI in 1 region; ILI activity in other regions is not increased	And	Recent (within the past 3 weeks) lab evidence of influenza in region with increased ILI
	OR		
	2 or more institutional outbreaks (ILI or lab confirmed) in 1 region; ILI activity in other regions is not increased	And	Recent (within the past 3 weeks) lab evidence of influenza in region with the outbreaks; virus activity is no greater than sporadic in other regions
Regional	Increased ILI in 2 regions	And	Recent (within the past 3 weeks) lab confirmed influenza in the affected regions
	OR		
	Institutional outbreaks (ILI or lab confirmed) in ≥2 and less than half of the regions	And	Recent (within the past 3 weeks) lab confirmed influenza in the affected regions
Widespread	Increased ILI and/or institutional outbreaks (ILI or lab confirmed) in three or more regions	And	Recent (within the past 3 weeks) lab confirmed influenza in the state.

* Activity is increased when the number of cases reported for an area is three times the activity level during baseline data collection, October through the second week in November.
** Institution includes nursing home, hospital, prison, school, etc.

C. Pandemic Influenza Surveillance Activities (Strategic Surveillance Unit Leader, Strategic Epidemiology Unit Leader)

During a pandemic, in addition to routine surveillance, other activities will be undertaken in order to assess and control the scope of the disease across the state. Checklists of activities for all phases of pandemic influenza have been included in the appendices. Activities that will be the responsibility of ADPH are in Appendix A, recommended activities for the County Health Departments (CHD)are in Appendix C, and a checklist for Public Health Areas (PHA) is located in Appendix B. Key surveillance activities, which will begin during the Pandemic Alert phase and continue through the end of the Second Wave of the pandemic, will include:

1. Monitoring of hospitals for influenza activity. CHD staff will contact emergency departments and infection control practitioners within their jurisdictions to monitor influenza activity levels at hospitals. The number of emergency department visits, hospital admissions, and hospital deaths will be reviewed daily. ADPH will be responsible for statewide planning and coordination of hospital surveillance data.

2. Collection and analysis of vaccine adverse events data. The Immunization Division will distribute information and data collection forms for the federal Vaccine Adverse Events Reporting System (VAERS).

3. Collection and analysis of antiviral adverse events data. ADPH will rely on the federal system, which may include a telephone and web-based reporting network for adverse events from antiviral medications. Data will be collected, analyzed, and reported by CDC. Recommendations for use of antiviral medications may be adjusted based on information learned from adverse event data analysis.

4. Coordination to monitor populations affected by outbreaks of influenza in animals. If an outbreak of avian influenza is identified in Alabama, the ADPH Veterinarian will work with the Alabama Department of Agriculture and Industries (ADAI) to communicate with poultry producers and processors to monitor human populations who are at risk of becoming infected. ADPH will make recommendations for individuals who may be involved in culling operations, including recommendations for appropriate personal protective equipment (PPE), disinfection, and surveillance for human illness.

5. Coordination with neighboring jurisdictions. ADPH will work with neighboring states and the CDC to monitor influenza activity levels in the region. Special studies may be conducted as needed.

Enhanced surveillance measures, as outlined above, will be used to detect pandemic influenza activity levels across the state and to facilitate public health investigation and control interventions. When necessary, ADPH may implement additional surveillance measures in order to identify and control the spread of influenza.

IX. State Clinical Laboratory (SCL) (Clinical Lab Unit Leader)

ADPH state and county offices will work with the SCL to ensure the proper collection, transport, and testing of influenza specimens throughout all stages of an influenza pandemic. Virus culture collection kits for nasopharyngeal specimens are provided by ADPH for monitoring and outbreak investigations. Nasopharyngeal specimens (swab or wash) are collected for laboratory testing to detect and identify influenza virus. Acute and convalescent serology specimens should also be collected when indicated. ADPH leadership will consult with the State Public Health Lab about laboratory testing and interpretation of results. Influenza specimen collection guidelines can be found in Appendix D.

The best specimen for detection of influenza virus is a nasopharyngeal swab or wash. ADPH currently performs three tests to detect influenza virus in nasopharyngeal specimens:

1. Direct Fluorescent Antibody (DFA)

DFA can be done rapidly on the original patient specimen. Results are generally available on the same day the specimen is received in the laboratory. Positive results identify the virus as Influenza A or Influenza B. Negative results do not rule out influenza because antigen detection is less sensitive than culture.

2. Culture
   The patient specimen is placed into cell culture to isolate any of the common respiratory viruses, including influenza virus. Positive results may be available within a few days, but cultures are held for 14 days before being reported as negative. When a virus culture is positive for influenza, the virus will be identified as either Influenza A or as Influenza B.

3. Polymerase Chain Reaction (PCR)
   PCR testing of specimens from sentinel physicians shall be conducted as follows for the 2005-2006 Influenza Season:
   - A PCR will be run on all specimens who develop a positive culture.
   - A PCR will be run on all specimens which develop a negative culture, but which came from a physician who conducted a quick test which showed a positive result.
   - A PCR will be run on ten percent (10%) of all specimens from symptomatic patients who develop a negative culture. If a significant number of positive PCR results, the percent will be increased.

Once a positive test result is obtained by a culture, the specimen is sent to CDC for sub-typing of influenza virus. Influenza A viruses are routinely subtyped as H1 or H3 by monoclonal antibody. Selected Influenza A and Influenza B isolates are also subtyped at CDC by hemagglutination inhibition to test whether the isolate is closely related to the influenza strains included in the current season's influenza vaccine. Isolates are sent to CDC for complete subtyping characterization as part of the WHO surveillance to determine which strains of influenza virus should be included in the next season's vaccine. The ADPH and the CDC would immediately be notified, if laboratory tests indicated that an influenza virus isolate may be a different strain of influenza from those currently circulating nationally or in the vaccine.

During the Pandemic Alert stage, ADPH will establish a sampling protocol for influenza laboratory testing across the eleven public health areas, based on the pandemic and the resources available for laboratory testing. Once pandemic influenza has been established in a health region, laboratory testing for that region may be scaled down, depending on the public health need for additional testing. Sampling protocols may be changed once progression to the next pandemic influenza phase has been declared.

X. Case Confirmation Investigation (Communicable Disease Unit Leader)

Once a positive pandemic or novel influenza strain is discovered to be circulating in Alabama, the EP surveillance nurses would be called to investigate the case to determine if they are other people infected or exposed. The case investigation would also entail collecting and contacting those exposed to test for the novel virus.

XI. Vaccine and Antiviral Priority Groups

When the U.S. confirms the first case of pandemic influenza disease, a decision must be made regarding who will receive the available antivirals or vaccine available. The decision will impact the mortality, morbidity, loss of quality of life, and economic damage to Alabama. Current annual high-risk group recommendations are expected to change, because past pandemic influenza outbreaks have also affected the young and healthy people. The Executive Planning Committee will make the final decision based on CDC's recommendations.

On June 19, 2005, the National Vaccine Advisory Committee (NVAC) and the Advisory Committee on Immunization Practices (ACIP) made recommendations to the prioritization of vaccine and antivirals and purchase recommendations for pandemic influenza vaccine. The groups noted that this prioritization may change depending on disease epidemiology.

Goals

1. Minimize hospitalizations and deaths
2. Preserve critical infrastructure and minimize social disruption.

Priority Groups

1. Health Care Workers
2. Vaccine Manufacturing Personnel
3. Highest Risk of Complications
4. Critical Public Health Pandemic Responders

Second Priority Group

1. High Risk Populations
2. Public Health Emergency Responders

Third Priority Group

1. Critical Infrastructure Workers
2. Key Government Health Decision Makers
3. Mortuary Services

Fourth Priority Group

1. Remainder of the Healthy Population

The NVAC and ACIP supported federal purchase of all vaccine, so as to best facilitate distribution and targeting, give states and localities maximal control, and guarantee purchase for manufacturers. The recommendation also notes that when the pandemic is declared over, purchase and distribution of the vaccine would revert back to the mixed public/private system currently in place.

Antivirals

Priority Groups

1. Health Care Workers
2. Highest Risk Outpatients
3. Emergency Responders

Second Priority Groups

1. Hospitalized Patients
2. Outbreak Situations

XII. Antivirals and Antibiotics (SNS, VMI, ChemPac Director)

NVAC and ACIP recommended stockpiling antiviral drugs, primarily oseltamivir and secondarily zanamivir which is effective against oseltamivir resistant viruses.

In the United States, four antiviral agents are approved for preventing or treating influenza: amantadine, rimantadine, zanamivir, and oseltamivir. See Appendix H. The CDC only recommends treatment with oseltamivir for pandemic influenza strains.

It is also important to note that antiviral agents are an adjunct and not a substitute for vaccine. Vaccination remains the principal means for preventing influenza-related morbidity and mortality.

The SCPH will make specific recommendations for treatment of antiviral agents based on availability and effectiveness during an actual pandemic. The following information is provided for guidance, but may be superseded by additional guidance based on the specific response of a pandemic influenza virus.

Oseltamivir is a member of a new class of drugs called neuraminidase inhibitors, and are active against both influenza type A and type B. Side effects reported most often in individuals taking oseltamivir include nausea and vomiting. Oseltamivir have been shown to reduce the duration of uncomplicated influenza A and B illness by approximately 1 day. The recommended duration of treatment is 5 days.

XIII. Vaccine Storage

It is vital to maintain the cold chain during the storage, transportation and shipment of vaccine. Please see the Immunization Division Emergency Handling Procedures for complete details of vaccine management practices..

A. Storage Options

The Alabama Department of Health, Immunization Division, has four storage options in the event pandemic influenza necessitates mass vaccination:

Mass quantities of vaccine and supplies can be stored at the Vaccine Distribution Center (VDC) within the ADPH warehouse. This facility is secure and has an alternate source of power. Additional security can be added quickly if needed.

1. Additional vaccine and supplies can be stored at each of the Public Health Area Offices and 22 CHDs who have ADI temperature-alarm on the refrigerators.
2. Tractor-trailers capable of refrigerated storage can be rented. Locally the trailers would pick up the vaccine at the VDC and be taken to the trailer company premises to be monitored for temperature, security, and fuel.
3. Local hospitals, private providers and local businesses with acceptable refrigerated storage can also be used for vaccine storage in an emergency.

B. Guidelines for Storage and Shipment

To ensure vaccine viability, influenza vaccine should be shipped and stored according to the following guidelines, assuming the vaccine is formulated and packaged similar to annual influenza vaccine:

- Storage Requirements: Influenza vaccine should be refrigerated at 2° to 8°C (35° to 46°F). Influenza vaccine cannot be frozen.
- Condition on Arrival: Vaccine should not have been frozen. Refrigerate immediately upon arrival.
- Instructions for Reconstitution or Use: Shake vial vigorously before withdrawing each dose.
- Shelf Life after Opening: Vaccine is viable until outdated if not contaminated.
- Special Instructions: Rotate stock so that the shortest dated vaccine is used first.

C. Primary Vaccine Distribution Plan

It is assumed that in a pandemic situation all vaccine would be distributed through ADPH. Using the VDC, Area Immunization Managers and staff, vaccine could be distributed to all 67 counties within 24 hours of receiving vaccine at the VDC. Each CHD should include, in their mass vaccination plan, storage options for large quantities of vaccine.

D. Secondary Vaccine Distribution Plan (Material Supply Unit Leader)

In the event that the primary distribution plan cannot be activated, UPS could be used to ship vaccine to CHD. Shipping Requirements: Influenza vaccine shipped from the VDC should be delivered in 24-48 hours. The vaccine is shipped in insulated containers with ice packs.

XIV. Mass Vaccination (Field Treatment Unit Leader)

Mass vaccination, if appropriate, will be carried out following the County Mass Vaccination Plan in conjunction with the Alabama Emergency Management Agency and other partners. Each public health area (PHA) and CHD is developing a local pandemic influenza plan, assuming they would be able to vaccine their entire population within 5 days. At this time, mass vaccination sites and clinic coordinators have been identified in each county.

XV. Mass Care (Ancillary Services Director)

Mass patient care will be implemented through procedures outlined in the ADPH's EOP for other emergency events. The PHA EP Teams should contact hospitals within their area to discuss and determine provisions for mass care of community members. In partnership with hospitals, CHDs should determine and outline their roles in a mass care event. Offsite triage, care, transportation of patients, and housing of patients should be addressed.

The ADPH will work with the American Red Cross and other community partners to train people to care for the moderately ill at home and to develop educational materials in both print and video to be distributed during a pandemic event. These measures will allow the reservation of hospital beds for the most critically ill patients.

XVI. Mass Casualty (Expert Resources Unit Leader)

Mass casualty plans will be implemented through procedures outlined in the ADPH's EOP for other emergency events.

Guidelines for officials on how to plan for delivering health and medical care in a mass casualty event are outlined in a new report from an expert panel convened by HHS' Agency for Healthcare Research and Quality and Office of Public Health Emergency Preparedness. http://www.ahrq.gov/research/altstand/

Several recommendations for action related to planning a health and medical care response to a mass casualty event are identified below. The list of recommendations is not meant to be comprehensive, but it provides a starting point for discussion. These ideas suggest that a collaborative approach should be taken when developing next steps; both government and private organizations have unique roles and important contributions to make in moving forward.

1. Develop general and event-specific guidance for allocating scarce health and medical care resources during a mass casualty event.
2. Develop and implement a process to address non-clinical issues related to the delivery of health and medical care during a mass casualty event.
3. Develop a comprehensive strategy for risk communication with the public before, during, and after a mass casualty event.
4. Identify, analyze, and consider modification of Federal, State, and local laws and regulations that may affect the delivery of health and medical care during a mass casualty event.
5. Develop means for verifying credentials of medical and other health personnel prior to and on-site during a mass casualty event.
6. Create strategies to ensure health and medical leadership and coordination for the health and medical aspects of system response during a mass casualty event.
7. Continue and expand efforts to train providers and others to respond effectively in a mass casualty event.
8. Develop and support a research agenda specific to health and medical care standards for mass casualty events.
9. Develop a Community-Based Planning Guide for Mass Casualty Care.
10. Identify and support States, health systems, and regions to develop mass casualty and health and medical care response plans based on the Planning Guide and to share their results widely.

XVII. Communications (Communications Unit Leader, Public Information Officer)

The primary communications goal of ADPH during a pandemic will be to ensure a timely, accurate, and consistent flow of information. Information will primarily be provided to public health area (PHA) staff, CHD staff, health professionals and the general public. ADPH staff will be available as needed to provide information and technical assistance directly to health professionals on: vaccine management, antiviral use for treatment and

chemoprophylaxis, influenza surveillance, infection control, and treatment and care of patients.

A. Key communication activities of ADPH will include:

- Monitoring bulletins from the CDC and WHO regarding virologic, epidemiologic, and clinical findings associated with new variants isolated within or outside of the country.
- Distribution of timely and appropriate influenza bulletins and alerts through the Health Alert Network (HAN).
- Live, interactive videoconferences on influenza, which can be initiated for CHD, PHA and ADPH central office personnel as well as private providers as necessary.
- Planning guidance to CHD, schools, hospitals, clinics, pharmacies, and others on preparing for and responding to pandemic influenza. Planning guidance for health departments can be found in Appendices D and E. Guidance documents for other partners will be developed throughout the pre-pandemic phase.
- Weekly reporting on influenza activity levels across the state.
- Education of the general public on best practices to help reduce risk of infection.
- Education of the general public on how to care for the ill at home.
- The Social Marketing Division will coordinate translation of major public information documents for non-English speaking persons and will also coordinate and arrange for news conferences, as they are needed. Throughout the pre-pandemic period, communications staff will develop risk communications messages for different vaccination scenarios. A draft of potential risk communication messages is located in Appendix F.

B. Key communication activities of the Division of Immunization will include:

- Training of Investigational New Drug (IND) protocol for CHD and other relevant partners.
- Dissemination of information on VAERS through the Health Alert Network.
- Dissemination of information about vaccine availability and distribution plans to CHDs.
- Dissemination of the influenza vaccine information sheets to CHD.
- Communication of information about groups at high-risk for complications from influenza to CHD.
- Coordination of the vaccine distribution.

C. Key communication activities of Public Health Areas and CHD will include:

- Maintain two identified spokespersons for each Public Health Area who will, along with CHD Public Information Officers (PIO), be responsible for addressing pandemic influenza related media concerns.
- Distribution of timely and appropriate influenza bulletins to health care providers and community partners.
- Dissemination of information about vaccine availability and distribution plans to community partners.
- Dissemination of the influenza vaccine information sheet to clinic patients and area health care providers.
- Communication of information about groups at high-risk for complications from influenza to health care providers and community partners.

Appendix A: ADPH Planning Influenza Activities

Pre-Pandemic Phase
No unusual influenza activity patterns or strains have been reported to ADPH authorities.

- Develop printed and electronic communications capabilities to assist in distribution of information to Public Health Areas (PHA), County Health Departments (CHD), Private Providers and the general public.
- Educate the general public and stake holders regarding pandemic influenza issues.
- Immunization Division should review local plans for storage and shipment of vaccines.
- Assess ways to improve immunization rates for influenza and pneumococcal vaccines.
- Develop risk communications messages targeted for pandemic influenza.
- Develop and test pandemic influenza surveillance, investigation, and control procedures.
- Epidemiology Division will coordinate sentinel provider surveillance during the regular influenza season (October-April), ensuring participation of at least one provider site per 250,000 population. Implement year-round surveillance
- Enhance lab surveillance to detect new influenza variants.
- Investigate and respond to unusual influenza outbreaks. Enhance laboratory testing of outbreak strains.
- Maintain ongoing communication with the Alabama Department of Agriculture and Industry regarding epizootic and zoonotic influenza disease.
- Promote the establishment of private pharmacy antiviral stockpiles.

Novel Virus Alert
A novel influenza virus has been detected in one or more humans. The general population would have little or no immunity. During this phase, a pandemic is potential but not inevitable.

- Notify CHD and other stakeholders of a novel virus alert.
- Notify the Alabama Department of Emergency Management and private partners of novel virus alert.
- Monitor bulletins from the CDC and World Health Organization (WHO) regarding clinical, epidemiological, and virologic characteristics of novel variant and disseminate to CHD, stakeholders and partners.
- Enhance lab surveillance to detect the appearance of new influenza variants in Alabama.
- If a novel virus is identified in an Alabama resident, work with the CHD and PHA staff to conduct an epidemiologic investigation and determine possible exposure source(s), risk factors, and symptoms. Identify contacts, place under surveillance for illness, and work with the laboratory to determine whether testing of contacts is appropriate.

Pandemic Alert
A novel virus has demonstrated sustained person-to-person transmission and causes multiple influenza cases in the same geographic area.

- Collaborate with the CDC to determine which groups are at high risk for morbidity and mortality.
- Collaborate with CHD and private sector providers to ensure that identified high-risk groups and others receive vaccine and antiviral medications.
- Activate procedures to procure public sector vaccine. Store vaccine in pre-selected areas.

- Collaborate with providers and the State Health Lab to increase testing for influenza viruses in specimens from travelers to pandemic areas.
- Send representative and unusual virus isolates to the CDC for appropriate testing (to include antiviral resistance studies).
- Activate routine surveillance systems for influenza (if pandemic alert occurs during non-influenza season).
- Continue to monitor bulletins from the CDC and WHO regarding clinical, epidemiological, and virologic characteristics of novel variant, and update CHD, stakeholders, and partners.
- Review and revise drafts of public information documents (fact sheets and guidelines).
- Review vaccine distribution plans with stakeholders and partners, and modify as needed.
- Monitor availability and coordinate distribution and delivery of public-sector vaccines.
- Prepare translated versions of major public information documents for non-English speaking persons.

Pandemic Imminent
A novel virus has caused unusually high rates of morbidity and mortality in multiple, widespread geographic areas.

- Notify state agencies and other partners of the potential for an influenza pandemic.
- Continue to monitor bulletins from the CDC or WHO regarding clinical, epidemiological, and virologic characteristics of novel variant. Update CHD, stakeholders, and partners.
- Implement surveillance and data collection for adverse events following use of antivirals and drug-resistant strains of influenza.
- Coordinate surveillance activities and findings with other states and federal agencies.
- Participate in special studies as requested by the CDC.
- Maintain current listings of public-sector vaccine distribution sites within Alabama.
- Request OCME to provide lab with selected autopsy specimens for influenza testing.
- Activate ICS
- Cancel all optional leave for ADPH staff.

Pandemic
The novel strain influenza virus has spread to multiple continents.

- Institute control measures in accordance with the CDC and other federal recommendations.
- Ensure that the Emergency Operations Center (EOC) and key health officials are kept informed of all health and medical developments and decisions during pandemic.
- Monitor availability and coordinate distribution and delivery of public-sector vaccines.
- Coordinate activities with other states and federal health agencies.
- Continue to monitor bulletins from the CDC and WHO regarding clinical, epidemiological, and virologic characteristics of novel variant. Update PHA, CHD, stakeholders, and partners.
- Coordinate release of health information with Public Information Officers.
- Monitor antiviral adverse events weekly and transmit information to the CDC so that unexpected adverse events can be detected early and antiviral recommendations altered according to federal recommendations.
- Send selected influenza A isolates to the CDC for antiviral resistance testing so resistance prevalence can be estimated and to make antiviral recommendations.
- Participate in special studies as requested by the CDC and others in order to: describe unusual clinical syndromes, describe unusual pathologic features associated with fatal cases, conduct efficacy studies of vaccination or chemoprophylaxis, and to assess the effectiveness of control measures.

Second Wave
A recurrence of epidemic activity within several months following the initial wave of infection occurs.

- Continue all activities listed under Pandemic phase.
- Review, evaluate and modify as needed, the ADPH pandemic response.
- Continue to procure vaccine.
- Monitor resources and staffing needs.

Pandemic Over
Successive pandemic "waves" have subsided and is accompanied by the return of a more typical seasonal trend.

- Summarize findings and report to the CDC on the epidemiological characteristics of the pandemic in Alabama and on the lessons learned.
- Assess state capacity to resume normal public health function and health care delivery.
- Report results of assessment to CDC.

Appendix B. Public Health Areas (PHAs) Planning Checklist

Pre-Pandemic Phase

No unusual influenza activity patterns or strains have been reported to health authorities.

Emergency Planner:

- Review all-hazards plans for inclusion of mass vaccination campaigns and security with local EMA law enforcement authorities.
- Conduct a county-wide space and site resource inventory. Determine the availability of shelters, firehouses, schools, gymnasiums, nursing homes, day care centers, and other potential sites for aggregate care. Work with hospitals in your jurisdiction to identify appropriate sites to serve as triage centers, treatment centers, mass vaccination sites or as holding areas for acutely ill patients not able to be admitted to an acute care hospital. Make arrangements with owners of each facility to use the site, if necessary, to care for ill persons during a pandemic.
- Identify facilities/resources with sufficient refrigerated storage to serve as temporary morgues, if necessary. Develop a plan for management of bodies when morgue capacity has been exceeded.
- In coordination with ADPH, devise a plan for local distribution and administration of public-sector vaccine.
- Work with local private and volunteer organizations to develop and synchronize local response to a pandemic influenza outbreak.
- Coordinate with other public health disaster planning at the local level.

Novel Virus Alert Phase

A novel influenza virus has been detected in one or more humans. The general population would have little or no immunity.

- Notify hospitals and local private and public partners of novel virus alert.
- Notify local emergency management director of novel virus alert.
- Disseminate bulletins received from the CDC or ADPH regarding clinical, epidemiological, and virologic characteristics of variant strain.
- Encourage Sentinel Providers to collect specimens for submission to the SCL in order to detect the presence of variant strains in Alabama.
- If a novel virus is identified in a resident, conduct an epidemiologic investigation and determine possible exposure source(s), risk factors, and symptoms. Identify contacts, place under surveillance, and determine with the laboratory whether testing of contacts is appropriate.

Pandemic Alert

A novel virus has demonstrated sustained person-to-person transmission and causes multiple influenza cases in the same geographic area.

- Update pandemic influenza response plans.
- In coordination with the ADPH, update hospitals, EMA, emergency medical services (EMS), local law enforcement, and local, private and public partners.
- Ensure that high-risk groups and essential personnel receive vaccine and antiviral medications.

Pandemic Imminent
A novel virus has caused unusually high rates of morbidity and mortality in multiple, widespread geographic areas.

- Review plan for distribution of vaccine.
- Provide ADPH with lists of public vaccination sites.
- Enhance collection of clinical specimens and transport to the state laboratory.
- Contact private partners to review their plans for distribution and administration of private-sector vaccine, if applicable.
- Finalize surveillance plans with area hospitals outlining mechanisms to obtain data.

Pandemic
The novel strain influenza virus has spread to multiple continents.

- Coordinate use of local resources during pandemic, including private, public, and volunteer resources.
- Report pandemic-related information, including influenza data obtained from hospitals, regularly to the ADPH Epidemiology Division.
- Assess effectiveness of local response and available local capacity.
- Implement mass vaccination clinics to administer vaccine once it becomes available.
- Notify hospitals to monitor emergency departments for influenza activity, including a review of emergency department visits, hospital admissions, and hospital deaths.

Second Wave
A recurrence of epidemic activity within several months following the initial wave of infection occurs.

- Continue all activities listed under Pandemic phase.
- Review, evaluate, and modify the local pandemic response.
- Report pandemic-related information regularly to ADPH.
- Continue to vaccinate.
- Monitor resources and staffing needs.

Pandemic Over
Successive pandemic “waves” has subsided and it accompanied by the return of a more typical seasonal trend.

- Assess local capacity to resume normal public health functions.
- Assess local capacity to resume normal health care delivery.
- Assess fiscal impact of pandemic response.
- Report results of assessment to ADPH.
- Modify the local Emergency Operations Plan (EOP) and Pandemic Influenza Response Plan (PIRR) based on lessons learned.

Appendix C: County Health Departments (CHDs) Planning Guidance

A. Background Information
- Frequent mutations of surface glycoprotein genes result in new influenza virus variants.
  - Antigenic shift → emergence of completely new subtypes (type A only; leads to pandemics)
  - Antigenic drift → minor changes (all types; leads to frequent outbreaks & epidemics)
- Antigenic drift necessitates annual reformulation of flu vaccine to incorporate >1 new strains.
- The emergence of a new influenza subtype due to antigenic shift could result in high attack rates among the entire population and the need for reformulation of the vaccine for adequate coverage.
- Through the sentinel physician and laboratory surveillance programs, ADPH obtains information as to which influenzas strains are circulating in the community. If a new subtype emerges, the ADPH central office will notify CHDs immediately so that they can begin preparations for an emergency vaccination program.
- In the event of a pandemic, a joint team comprised of CDC, ADPH central office and CHD members will coordinate mass vaccination and chemoprophylaxis programs.

B. Priority Vaccination in Pandemics
- Persons involved in medical/public health evaluation, care or transportation of cases
- Laboratory personnel involved in collecting or processing clinical specimens
- Emergency Responders
- Selected law enforcement personnel
- Military personnel
- Other specified groups that provide essential community services
- Persons at high risk for morbidity and mortality from influenza

C. Persons at High Risk for Complications from Influenza during Interpandemic Years
It is possible that persons at increased risk for complications from influenza during the typical influenza season may also be considered high-risk during a pandemic. They include:
- Persons age 6-23 months and >65 years old
- Residents of nursing homes and other chronic-care facilities
- Persons w/ chronic cardiac, pulmonary, metabolic and renal conditions, and hemoglobinopathies
- Immunocompromised
- Children and teenagers (ages 6 months-18 years) who are receiving long-term aspirin therapy
- Women who are pregnant

D. Vaccine Contraindications
- Allergy to egg
- Allergy to vaccine component
- History of Guillain-Barre Syndrome

Appendix D: Specimen Collection Protocols
This document is currently being updated by Epidemiology Division, Influenza Coordinator

ISOLATION SPECIMEN MUST BE COLLECTED
WITHIN 48 HOURS OF ONSET OF ILLNESS

SPECIMENS MUST BE DELIVERED TO THE LABORATORY
WITHIN 72 HOURS OF COLLECTION

STATE CLINICAL LAB will provide the collection materials and testing services in support of state and federal influenza monitoring and outbreak investigation programs. They will also provide collection materials and testing for other viruses as listed in the table below.

Specimen Collection Kits: Isolation kits are prepared by State Clinical Lab and may be obtained from the Sample Kit Office at (205) 933-1388.

Isolation Collection Kit Contents:
1. Sterile Viral Transport Broth (Refrigerate upon receipt and do not use if turbid.)
2. One viral collection swab
3. One small sealable specimen bag
4. One set of instructions
5. Absorbent sheet of packing material
6. Metal container or Plastic Pressurized Vessel (Do not place labels on these containers.)
7. Large sealable, biohazard plastic shipping bag (8" x10") ["Attn: Viral Isolation" label] with pouch
8. Reference request/reporting form (DGS form # -22-164[Rev.1/89])
9. One cold pack (Store frozen so it will be ready for transport.)
10. One Styrofoam cooler and one return address label
11. Pre-paid FedEx mailing label (Supplied only to the Influenza Program Sentinel Physicians.)

Nasal Wash collection kit (sent only by request)
1. One 5 cc syringe
2. Sterile screw-cap urine cup
3. Sterile Saline

Instructions for Specimen Collection

- Each isolation kit provides enough material to sample one patient
- Collect specimen as close to clinical onset as possible and ship quickly to the lab using provided cooler and cold pack
- Collection of specimens for a nursing home outbreak should be conducted through the CHD
- A selective sampling of the most recently ill individuals may be considered in these outbreak scenarios

Nasopharyngeal Swab

- Instruct the patient to sit with head slightly tilted backwards. Gently push the tip of the patient's nose back with your thumb.
- Insert the nasopharyngeal swab into the nostril back to the nasopharyngeal cavity. The patient's eyes will momentarily tear. Slowly rotate the swab as it is being withdrawn.

- Repeat this process using the same swab in second nostril again touching the cavity's back wall.
- Insert the swab into the transport tube bending the wire if necessary to fit completely inside the vial. The broth should cover the tip of the swab in the vial. Tightly cap the vial.
- Label the tube with the patient's name and date of collection (use supplied label.)

Complete the request form (DGS form # -22-164[Rev.1/89]) and refrigerate the specimen until packaging for transport.

Instructions for Specimen Transport

- Ensure specimens are properly labeled and request forms have been completed before transport.
- Place labeled specimens in small specimen bag along with absorbent packing material and seal bag
- Place in metal container or pressurized vessel and securely screw on lid
- Place metal container or pressurized vessel containing the specimen in large biohazard shipping bag
- Seal the large shipping bag
- Place form in the pocket of the shipping bag
- Place bagged specimens in the cooler with frozen cold pack to keep specimen refrigerated (increases chance of viral recovery)
- Seal cooler for shipment to lab
- Affix correct address label to cooler
- Ship specimens without delay
- Each shipment of specimens from a submitter must comply with shipping regulations detailed in IATA 1.5 and 49 CFR Section 1720700 [U.S. Department of Transportation.]
- Send specimens to lab by overnight courier or Federal Express or UPS. Use the following address on all packages:

Birmingham State Lab
1400 Sixth Ave. South
Birmingham, Alabama 35233

Result Reporting

Routine monitoring results are mailed to submitter and the Office of Epidemiology. When alerted of a medical emergency or an outbreak, results will be telephoned to the submitter and to the Office of Epidemiology if a reporting telephone number was provided.

Specimen Rejection:

Specimens that exceed holding time, specimens not labeled or incorrectly labeled, specimens with insufficient volume, or specimens collected in isolation kits not supplied by state health lab will be rejected.

Requests for Additional Information or Specimen Collection Questions: For additional information or questions or to order collection kits, please call (205)933-1388.

Appendix E: Potential Priority Groups Lists

Organization
STATE GOVERNMENT
ABI
Ag and Industry
Attorney General
Corrections
Forensic Science
Governors Office
Human Resources
Lt. Governor's Office
Mental Health
Public Health
Revenue
Secretary of State
State Troopers
Transportation
Treasury
Youth Services
COMMUNITY BASED
City Council
County Commissioners
Electric
Embalmers
EMS
Fire
Funeral Directors
Grocery Stores
Judges
Law Enforcement
Licensed Practical Nurses
Mayors
Media
Medical Support Staff
Misc. City
Physicians
Registered Nurses
Truck drivers

Appendix F: Influenza Infection Control Measures

Influenza viruses are spread from person-to-person, primarily through inhalation of small particle aerosols and large droplet transmission. Transmission may also occur through direct and indirect contact with infectious respiratory secretions. Persons can be infectious starting the day before symptoms begin through approximately five days after illness onset. Children can be infectious for a longer period. The main option for controlling influenza is immunoprophylaxis with the inactivated vaccine. Use of antiviral drugs for treatment is an important adjunct to vaccination.

The general public will have to consider "isolation in place" to reduce the risk of spreading the pandemic influenza to others.

Special guidelines for infection control should be in place during pandemic influenza, taking into account the likelihood a high proportion of the population will be affected and secondary infections are a major source of morbidity and mortality. In physician offices, airborne precautions should be followed (see http://www.cdc.gov/ncidod/hip/ISOLAT/airborne_prec_excerpt.htm). Healthcare facilities, in addition to airborne precautions, may want to consider the following:

- Staff education: Staff should be educated annually about the prevention and control of influenza, focusing on transmission of infection. Staff should be reminded that they can transmit the virus via their hands or fomites (e.g. towels, medication cart items, etc).

- Hand washing: Hands should be washed after touching blood, body fluids, secretions, excretions, and contaminated items, whether or not gloves are worn. Hands should be washed with plain soap or detergent for at least 10-15 seconds under running water.

- Gloves: Clean, disposable gloves should be worn when touching blood, body fluids, secretions, excretions, and contaminated items. Gloves should be removed after use, before touching any non-contaminated items, or before touching another patient. Hands should be washed immediately with soap and water or an alcohol-based hand-rub.

- N-95 Masks: Healthcare workers and visitors should wear masks and the patient should wear a mask when being transported.

- Bed Management: Consideration should be given to cohorting ill patients, since private rooms are not likely to be available for influenza patients during a pandemic. Movement and transport of patients should also be limited as much as possible.

Long-term care facilities (LTCF) may take the following measures to control influenza:

- LTCF should call the CHD if an increase in cases of respiratory illness is observed, especially if it is associated with an increase in hospitalizations or deaths. Maintain a heightened surveillance for febrile and respiratory illness among residents and staff.

- LTCF staff should be assigned to work with either sick or well patients, but not circulated between both groups. Staff should not work while ill.

- Visitation should be restricted.

- If admissions are restricted due to an outbreak, when admissions resume, any new admissions should be vaccinated and segregated from the general population for two weeks.

- Vaccinate all residents or staff.

- Separate residents taking antiviral medications for treatment from other residents.

In some circumstances, such as a novel virus alert, public health officials may advise that certain patients should be managed under standard plus droplet and contact precautions. This may happen if a novel virus is isolated in humans and the possibility of person-to-person transmission cannot be ruled out. In such circumstances, healthcare facilities should initiate the following additional precautions for patients hospitalized with, or under evaluation for, infection with a novel virus:

- Gloves and gowns: Clean, disposable gloves and gowns should be worn for all patient contact.

- Eye protection: Routinely wear eye protection when within 3 feet of patient. If splash or spray of respiratory secretions or other body fluids is likely, protect the eyes with goggles or a face shield. The face shield should fully cover the front and wrap around the side of the face. Corrective eyeglasses or contact lenses alone are not considered eye protection.

- Isolation: Place the patient in an airborne isolation room (e.g., monitored negative air pressure in relation to the surrounding areas with 6 to 12 air changes per hour).

- N-95 Masks: Use a fit tested respirator, at least as protective as a NIOSH-approved N-95 filtering face piece respirator when entering the room.

- Patient transport: Limit patient movement and transport outside the airborne isolation room to medically necessary purposes. If patient movement or transport is necessary, ensure that the patient wears a surgical mask, puts on a clean patient gown, and performs hand hygiene before leaving the room. If a mask cannot be tolerated, apply the most practical measures to contain respiratory secretions.

Appendix G: Pandemic Influenza Overview

Organism	• Influenza virus – types A; (A is further categorized into subtypes); B; type C - rare cause of disease • Frequent mutations of surface glycoprotein genes result in new influenza virus variants o Antigenic shift → emergence of completely new subtypes (type A only; leads to pandemics) o Antigenic drift → minor changes (all types; leads to frequent outbreaks & epidemics)
Reservoir	Type A – humans; swine; birds; types B & C – humans
Communicability	• Person-to-person, primarily through coughing and sneezing of infected persons • Communicable 1 day before onset of symptoms until approximately 5 days thereafter • Disease usually peaks in U.S. from December to March. • In pandemics, entire population susceptible; attack rates high among all ages
Mortality Rates	Deaths result from pneumonia and exacerbations of cardiopulmonary and other chronic conditions. • Interpandemic years: 1972 through 1992 - 9.1 deaths per 100,000 Americans per season • Pandemics: 1918 Spanish flu – 218.4 deaths per 100,000 Americans; 1957 Asian flu – 22 deaths per 100,000; 1968 Hong Kong flu – 13.9 deaths per 100,000
Incubation period	1-3 days
Symptoms	• Influenza A – Abrupt onset of fever, myalgia, headache, severe malaise, sore throat, rhinitis, nonproductive cough (symptoms last limited number of days; cough can persist for 2 weeks) • Influenza B – Similar but milder symptoms than type A; occurs primarily in children
Complications	High risk: Age 6-23 months, >65 yrs.; nursing home residents; persons w/ chronic cardiac, pulmonary, metabolic & renal conditions & hemoglobinopathies; immunocompromised; >12 wks of pregnancy • Pneumonia - secondary bacterial (most frequent) and primary influenza viral • Worsening of underlying medical conditions • Rarely associated with Reye syndrome (occurs primarily in children with Influenza B taking aspirin); myocarditis; encephalopathy; transverse myelitis; myositis; pericarditis
Laboratory tests	Rapid antigen tests; viral culture; RT-PCR; serology
Infection control	Standard precautions, strict hand washing. For hospitalized cases: isolation; droplet precautions Airborne precautions may be advised during special circumstances such as a novel virus alert.
Prevention	Primary strategy: Annual vaccination before influenza season • Antigenic drift necessitates annual reformulation of flu vaccine to incorporate >1 new strains • Contraindications – allergy to egg or vaccine; avoid in persons with previous severe reaction

<table>
<tr><td></td><td colspan="5">

Delay vaccination of persons with acute febrile illness but not minor illness, with or without fever
Inactivated (i.e., killed) trivalent vaccine; approved for ages >6 months old: provides 70-90% protection in healthy adults; reduces complications by 50-60% and death by 80% among elderly in nursing homes
Live attenuated influenza vaccine; approved only for healthy individuals ages 5-49 and not for persons with underlying medical conditions, immunocompromised persons, persons with asthma, reactive airway disease or other cardiac/pulmonary disorders, pregnant women, or children receiving aspirin therapy or other salicylates. Such individuals should receive the inactivated vaccine.

Adjunct strategy: Chemoprophylaxis with antivirals for unvaccinated high risk & advanced HIV
</td></tr>
<tr><td rowspan="6">Antiviral Recommendations</td><td>Antiviral Agent</td><td>Trade Name</td><td>Flu type</td><td>Use</td><td>Age Restrictions</td></tr>
<tr><td>Amantadine</td><td>Symmetrel®</td><td>A</td><td>Prophylaxis/ Treatment</td><td>>1 year</td></tr>
<tr><td>Rimantadine</td><td>Flumadine®</td><td>A</td><td>Prophylaxis/ Treatment</td><td>Only adults for treatment >1 year for prophylaxis</td></tr>
<tr><td>Zanamivir</td><td>Relenza®</td><td>A and B</td><td>Treatment only</td><td>>7 years</td></tr>
<tr><td>Oseltamivir</td><td>Tamiflu®</td><td>A and B</td><td>Prophylaxis/ Treatment</td><td>>1 year for treatment >13 years for prophylaxis</td></tr>
<tr><td colspan="5">Treatment: Can reduce duration of uncomplicated illness if given within 48 hours of symptom onset.</td></tr>
<tr><td>Surveillance</td><td colspan="5">State regulations require the reporting of influenza cases to the health department within 7 days.</td></tr>
</table>

For more information, refer to: Centers for Disease Control and Prevention. Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices. MMWR 2003; 52 (RR08): 1-36.

Appendix H: Antiviral Overview

Amantadine Manufactured under the trade name Symmetrel® by Endo Laboratories Also available in generic forms	• Used to treat uncomplicated illnesses due to influenza A in individuals 1 year of age and older (must be given within two days of illness onset) • Used prophylactically to reduce chance of getting influenza A in individuals 1 year of age and older (approximately 70%-90% effective) • Also used in the treatment of Parkinson's disease and drug-induced extra pyramidal reactions • Available in tablet or syrup form • Adverse reactions reported most frequently include nervousness, anxiety, difficulty concentrating, lightheadedness and insomnia • More serious but less frequent side effects including behavioral changes, delirium, hallucinations, agitation, and seizures have been observed among individuals with renal insufficiency, seizure disorders, or certain psychiatric disorders • Should not be used for patients with untreated angle closure glaucoma because of anticholinergic effects • To reduce the emergence of antiviral drug-resistant viruses, amantadine therapy for treatment of influenza should be discontinued as soon as clinically warranted, typically after 3-5 days of treatment or within 24-48 hours after disappearance of signs and symptoms
Rimantadine Manufactured under the trade name Flumadine® by Forest Laboratories Also available in generic forms	• Used to treat uncomplicated illnesses due to influenza A in adults (must be given within two days of illness onset) • Used prophylactically to reduce chance of getting influenza in individuals 1 year of age and older (approximately 70%-90% effective) • Available in tablet or syrup form • Adverse events reported most frequently include nervousness, anxiety, difficulty concentrating, lightheadedness, and insomnia. • More serious but less frequent side effects including behavioral changes, delirium, hallucinations, agitation, and seizures have been observed among individuals with renal insufficiency, seizure disorders, or certain psychiatric disorders • To reduce the emergence of antiviral drug-resistant viruses, rimantadine therapy for treatment of influenza should be discontinued as soon as clinically warranted, typically after 3-5 days of treatment or within 24-48 hours after disappearance of signs and symptoms
Zanamivir Manufactured under the trade name Relenza® by GlaxoSmithKline	• Used to treat uncomplicated illnesses due to influenza A and B in individuals 7 years of age and older (must be given within two days of illness onset) • Not used to prevent the flu or to decrease the risk of transmitting the virus to others • Available as a dry powder, inhaled twice a day from a breath-activated plastic devise called a Disk haler • Some patients, especially those with asthma or chronic obstructive pulmonary disease (COPD), have had bronchospasms or serious breathing problems after using zanamivir • • Zanamivir is not recommended for patients with underlying airway disease; if physicians prescribe it after careful consideration of risks and benefits, the drug should be prescribed under careful monitoring and

	supportive care, including the availability of fast acting bronchodilators. • Side effects, in addition to bronchospasms, may include headache, diarrhea, nausea, bronchitis, cough, sinus inflammation, infections of the ear, nose, and throat, and dizziness. • Recommended duration of treatment is 5 days
Oseltamivir Manufactured under the trade name Tamiflu® by Hoffman-LaRoche , Inc.	• Used to treat uncomplicated illnesses due to influenza A and B in individuals 1 year of age and older (must have been given within two days of illness onset) • Used prophylactically to reduce the chance of getting influenza in persons 13 years of age and older (approximately 70%-90% effective) • Available in capsule or oral suspension form • Possible side effects include nausea and vomiting. Side effects are similar whether oseltamivir is taken for treatment or prophylaxis • Recommended duration of treatment is 5 days

Note. Information was taken from: Centers for Disease Control and Prevention. Prevention and Control of Influenza: Recommendations of the Advisory Committee on Immunization Practices. MMWR 2003; 52 (RR08): 1-36.

Appendix I. Antiviral Recommendations

Chemoprophylaxis is not a substitute for vaccination. However, in the event of an influenza pandemic, vaccine may not be available, or may only be available in limited quantities.

Due to the limited supply of antivirals and the quantity needed to administer them prophylactically it is anticipated that the State Health Officer and Board of Health will recommend antivirals be used for treatment rather than prophylaxis except in unique situations.

In the United States, four antiviral agents are approved for preventing influenza: amantadine, rimantadine, zanamivir, and oseltamivir. All of the agents, except for zanamivir, are also approved for prophylactic use. Some important points about influenza antiviral medications are:

- Benefits of using antiviral agents in the treatment of influenza are limited.
- When administered within two days of illness onset, antivirals may reduce duration of uncomplicated influenza illness by approximately 1 day.
- None of the four antiviral agents have been demonstrated to be effective in preventing serious influenza-related complications such as bacterial or viral pneumonia.
- Death from influenza is much more likely to occur in the event of a serious influenza-related complication, especially among high-risk individuals. Preventing influenza rather than attempting to shorten the duration of illness can achieve maximum benefit. Therefore, in the event of an influenza pandemic, use of antivirals (excluding zanamivir) should be prioritized for treatment rather than prophylactically treatment purposes.

Recommendations for chemoprophylaxis are provided primarily to help health care-providers make decisions regarding persons who are at greatest risk of severe illness and complications from influenza. Prophylactic use of antivirals should be considered for the following groups:

1. Individuals targeted to receive vaccine who cannot be vaccinated due to anaphylactic hypersensitivity to eggs or other components of the influenza vaccine or individuals with a history of Guillain-Barre′ syndrome
2. Unvaccinated persons aged ≥ 65 years of age
3. Unvaccinated residents of nursing homes and other chronic-care facilities that house individuals of any age with chronic medical conditions
4. Unvaccinated adults and children who have chronic disorders of the pulmonary or cardiovascular systems, including children with asthma
5. Unvaccinated adults and children who have required regular medical follow-up or hospitalization during the preceding year because of chronic metabolic diseases (including diabetes mellitus), renal dysfunction, hemoglobinopathies, or immunosuppression caused by medications or by human immunodeficiency virus
6. Unvaccinated children and adolescents (aged 6 months-18 years) who are receiving long-term aspirin therapy and therefore, may be at risk of developing Reye syndrome after influenza infection
7. Unvaccinated employees of nursing homes, chronic-care facilities, and assisted living residences who have contact with patients or residents
8. Unvaccinated individuals who provide home care to persons at high-risk
9. Unvaccinated household members (including children) of persons at high-risk

Pregnant Women

Although pregnant women who will be in the second or third trimester of pregnancy during influenza season are recommended for vaccination, this group is not recommended for routine antiviral treatment. No clinical studies have been conducted regarding the safety and efficacy of amantadine, rimantadine, zanamivir, or oseltamivir for pregnant women. However, both amantadine and rimantadine have been demonstrated in animal studies to be teratogenic and embryotoxic when administered at very high doses. Because of the unknown effects of influenza antiviral drugs on pregnant women and their fetuses, these four drugs should be used during pregnancy only if the potential benefit justifies the potential risk to the embryo or fetus.

Drug Resistance

To limit the potential transmission of drug-resistant virus during institutional outbreaks, measures should be taken to reduce contact as much as possible between persons taking antiviral drugs for treatment and other persons, including those taking the same drugs for chemoprophylaxis.

Combination of Antiviral Medications

No published data are available concerning the safety or efficacy of using combinations of any of these four influenza antiviral drugs. For more detailed information concerning potential drug interactions for any of these influenza antiviral drugs, the package insert should be consulted.

It is important to be aware of persons already taking one of these medications for another purpose so that they will not be prescribed an additional amount, and thus receive too large a dose of the drug.

Antiviral Agents for Prophylaxis and Treatment of Influenza

Antiviral Agent	**Trade Name**	**Flu Type**	**Use**	**Age Restrictions**
Amantadine	Symmetrel®	A	Prophylaxis/Treatment	≥ 1 year
Rimantadine	Flumadine®	A	Prophylaxis/Treatment	Adults only for treatment ≥ 1 year for prophylaxis
Zanamivir	Relenza®	A and B	Treatment only	≥ 7 years
Oseltamivir	Tamiflu®	A and B	Prophylaxis/Treatment	≥ 1 year for treatment ≥ 13 years for prophylaxis

Appendix J: List of Disaster Mortuary Operational Response Team (DMORT) Expert Contacts

1. Forensic Science
2. Mortuary
3. Coroner
4. EMA (can request Regional DMORT Team response)
5. http://www.dmort.org/

Appendix K: Risk Communications Sample Messages

Key messages: 7–9 second sound bites (21 – 27 words)

- Because we are faced with a limited supply of vaccine, we will look at ways to do the most good for the most people.
- To make sure healthcare providers are available to care for those who develop influenza, it is imperative that we vaccinate healthcare workers immediately.
- To ensure that our community is safe and has water, electricity and other services we all rely on, we must prioritize vaccinating essential services workers.
- (Fill in age group)-olds are more seriously affected by this strain of influenza. They are high risk and, therefore, must be vaccinated early.
- Although this influenza vaccine has not been approved by the FDA, it will be given as an investigational new drug. Its benefits far outweigh the risks.

Gather Supporting Facts:

A. Track case numbers and mortality by age group and by locality

B. Identify groups of essential services workers

C. Develop clear explanations of risks associated with the disease and vaccination

D. Develop credible community sources that will validate the key message

E. Establish relationships and agreements with infectious disease specialists