

Missouri Department of Health and Senior Services

Pandemic Influenza Plan



Working document Version 2.0, February 9, 2006

ANNEX K.1.
PANDEMIC INFLUENZA

Listing of Key Officials

DHSS Department Situation Room (24 hours a day, 7 days a week) (800) 392-0272

Julia M. Eckstein, Director, Missouri Department of Health and Senior Services

Nancie McAnaug, Deputy Director, Missouri Department of Health and Senior Services

Glenda Miller, Director, Division of Community and Public Health

David Durbin, Director, Division of Regulation and Licensure

Bruce Clements, Director, Center for Emergency Response and Terrorism

Dr. Eric Blank, Director, State Public Health Laboratory

Nanci Gonder, Chief, Office of Public Information

Jane Drummond, Chief, Office of General Counsel

Brad Hall, Administrator, Section for Disease Control and Environmental Epidemiology

Harvey Marx, Chief, Bureau of Communicable Disease Control and Prevention

(Vacant), Chief, Bureau of Immunization Assessment and Assurance

Aaron Winslow, Chief, Office of Community and Public Health Emergency Coordination

Dr. Bao-Ping Zhu, State Epidemiologist and Chief, Office of Epidemiology

Anne Lock, Interim Director, Center for Local Public Health Services

Angela Krutsinger, Strategic National Stockpile Coordinator

PANDEMIC INFLUENZA RESPONSE PLAN

Purpose of Plan:

To provide an effective response to Pandemic Influenza resulting from natural causes or a terrorist release. This response will reduce the impact on public health (i.e. reduce illness and save lives) and maintain essential services while minimizing economic loss. The following response plan will be implemented after a novel influenza strain begins to spread readily from person to person, and it is geared toward action and specific responsibilities, and designed to complement existing DHSS emergency response plans.

Definition of Influenza:

Pandemic Influenza refers to a global influenza epidemic that, in contrast to seasonal influenza, 1) is a novel influenza virus that has undergone an “antigenic shift”; 2) has high population susceptibility worldwide; 3) shows evidence of high person-to-person transmissibility; 4) is spread over a broad range of geographic areas, causing unusually high rates of morbidity and mortality because of its virulence.

Background:

Epidemics of influenza occur annually in the United States, and the Department of Health and Senior Services runs an ongoing program of education, surveillance, control and prevention to minimize the effects of these epidemics.

The primary disease prevention strategy for epidemic influenza includes:

- Targeted vaccination* and anti-viral usage aimed at high-risk populations so as to minimize the effects of expected outbreaks.
- Public information and education.
- Enhanced surveillance.
- Isolation, quarantine, public facility closures and other control measures.
- The DHSS Pandemic Influenza Annex would be implemented as a part of the State’s Emergency Response Plan. ** Notification of a pandemic influenza would come from CDC in phases.

If an unexpected epidemic should occur as a result of a known circulating strain of influenza, parts of the pandemic flu plan would be implemented to minimize the outbreak. The parts implemented would depend upon the specifics of the outbreak and would be determined in consultation with CDC, DHSS experts, local public health agencies, and local and state elected officials.

*(*see Appendix A for a discussion of Vaccine Delivery)*

*(**see Appendix B for a discussion of the integration of the Pandemic Annex with the DHSS Emergency Response Plan)*

Pandemic Influenza: How Does an Influenza Pandemic Start?

There are three main types of influenza viruses: A, B, and C. And while influenza C causes only mild disease and has not been associated with widespread outbreaks, influenza types A and B cause epidemics nearly every year. Influenza A viruses are divided into subtypes, based on differences in two surface proteins: hemagglutinin (H) and neuraminidase (N). Influenza B viruses are not divided into subtypes. During an influenza season, usually one or more influenza A subtype and B viruses circulate at the same time.

A pandemic is possible when an influenza A virus makes a dramatic change (i.e., "shift") and acquires a new H or H+N. This shift results in a new or "novel" virus to which the general population has no immunity. The appearance of a novel virus is the first step toward a pandemic. In order to cause a pandemic, the novel influenza A virus must also spread easily from person to person causing serious disease. Influenza B viruses do not undergo shift and do not cause influenza pandemics.

The reservoir for Type A influenza viruses is wild birds, but influenza A viruses also infect animals such as pigs and horses, as well as people. The last two pandemic viruses were combinations of bird and human influenza viruses. Many believe that these new viruses emerged when an intermediate host, such as a pig, was infected by both human and bird influenza A viruses at the same time, creating a new virus. Events in Hong Kong in 1997, however, showed that this is not the only way that humans can become infected with a novel virus. Sometimes, an avian influenza virus can "jump the species barrier" and move directly from chickens to humans to cause disease.

Since, by definition, a novel virus is a virus that has never previously infected humans, or has not infected humans for a long time, it is likely that almost no one will have immunity or antibodies to protect them against the novel virus. Therefore, anyone exposed to the virus--young or old, healthy or weak--could become infected and get sick. If however, the novel virus is related to a virus that circulated long ago, older people who might have been exposed to it in their childhood could have some level of immunity. It has been suggested that because of immunity issues, a novel virus might strike hardest at healthy young adults – an age group not usually considered at risk of severe illness or death from annual influenza. Such widespread vulnerability in the population could lead to a potentially devastating pandemic. (Source CDC)

Assumptions in Planning

Pandemic preparedness planning is based on assumptions regarding the evolution and impacts of a pandemic. Defining the potential magnitude of a pandemic is difficult because of different severity levels and virulence between the three 20th-century pandemics. While the 1918 pandemic resulted in an estimated 500,000 deaths in the U.S., the 1968 pandemic caused an estimated 34,000 U.S. deaths. Similarities between the 20th century pandemics include the fact that in each, about 30% of the U.S. population developed illness, with about half seeking medical care. Children have tended

to have the highest rates of illness, though not of severe disease and death. Geographical spread in each pandemic was rapid and virtually all communities experienced outbreaks.

This Response Plan is based on assumptions derived from known evidence and expert opinion. The plan does not make predictions; rather, it reflects historical circumstances and current trends. These assumptions are necessary for scaling the plan to some workable format. However, adjustments may be made (and can be made) within the response if some of the assumptions prove to be false or otherwise inadequate.

Guiding Principles in Pandemic Influenza Response

DHSS will be guided by the following principles in initiating and directing its response activities:

- 1) DHSS will base levels of preparedness and response, in coordination with the United States Department of Health and Human Services (HHS), on the World Health Organization's Pandemic Plan and Pandemic Phase guidance.
- 2) DHSS will follow the guidance and direction of the DHHS' Pandemic Influenza Plan on the prioritization of groups for distribution of vaccine and antivirals, and maintain consistency with federal agency guidance on laboratory diagnostics, case definitions, clinical management, surveillance, and so forth.
- 3) DHSS will follow the concepts and principles of the National Response Plan and the National Incident Management System in planning and response.
- 4) DHSS will work to build a flexible response system determined, in addition to the above, by the epidemiological features of the virus and the course of the pandemic.
- 5) DHSS will provide honest, accurate and timely information to the public.
- 6) In advance of an influenza pandemic, DHSS will work with federal, state, and local government partners and the private sector to coordinate pandemic influenza preparedness activities to achieve interoperable response capabilities.
- 7) In advance of an influenza pandemic, DHSS will encourage all Missourians to be active partners in preparing local communities, workplaces, and homes for pandemic influenza and will emphasize that a pandemic will require Missourians to make difficult choices. An informed and responsive public is essential to minimizing the health effects of a pandemic and the resulting consequences to society.
- 8) DHSS will strive to ensure that preparations made for an influenza pandemic will benefit overall preparedness for any public health emergency or disease outbreak and serve to build capability and capacity to protect the health of all Missourians.
- 9) In advance of an influenza pandemic, DHSS, in concert with federal and local partners, will work to achieve statewide reliable, efficient and rapid distribution mechanisms for vaccine and antiviral drugs through the Strategic National Stockpile and local stockpiles.
- 10) Clusters of human-to-human transmission anywhere in the world (the advent of Phase 4) will trigger initiation of a pandemic response in Missouri. Because we live in a global community, a human outbreak anywhere means risk everywhere.

- 11) DHSS, with federal and local partners, will attempt to prevent an influenza pandemic or delay its emergence in the state by striving to arrest isolated outbreaks of a novel influenza (through isolation, quarantine, travel restrictions, public facility closures, etc.) wherever circumstances suggest that such actions might be successful. At the core of this strategy will be basic public health measures (such as hand washing) to reduce person-to-person transmission.
- 12) At the onset of an influenza pandemic, DHSS will work with the federal government to procure virus vaccine and distribute it to local public health departments for pre-determined priority groups, based on pre-approved local plans.
- 13) At the onset of an influenza pandemic, DHSS, in collaboration with federal and local partners, will begin to distribute and deliver antiviral drugs from public stockpiles to healthcare facilities and others with direct patient care responsibility for administration to pre-determined priority groups.

Pandemic Influenza: Assumptions Concerning Initial Response to a Pandemic

- A new pandemic will be due to a new subtype of influenza A.
- Emergence of new influenza A viruses is inevitable.
- Preparations should be geared toward a 1918 level pandemic. In Missouri, this would extrapolate to (without effective interventions) approximately 1.8 million ill, 900,000 seeking outpatient care, 198,000 hospitalizations, and 38,610 deaths.
- An influenza pandemic of this magnitude will affect all segments of society, and could overwhelm health care and mortuary systems, severely disrupt commerce and economic activity, break down normal societal patterns, and cause psychosocial trauma.
- An effective response to such a pandemic will require a coordinated community-wide effort from local, state, and federal agencies, private businesses, individual citizens, elected officials, and religious leaders.
- Risk groups for severe and fatal infections cannot be predicted with certainty.
- The seasonality of a pandemic cannot be expected with certainty.
- People who become ill may shed virus and can transmit infection for one-half to one day before they feel the onset of illness.
- The pandemic will occur in waves, with at least two waves likely. In an affected community, a pandemic wave will last about 6-8 weeks with as little as 30 days between waves.
- Preparations should be made for outbreaks that will likely occur simultaneously across the state and nation, limiting the ability of any one jurisdiction to provide support and assistance to others.
- A new virus may be a re-emerging, previously known human virus subtype which has not recently been in circulation, or a virus of avian origin, emerging either through stepwise 'adaptation' conferring greater affinity for humans or through a process of genetic 'reassortment' between the genes of an avian and human virus.

- From time to time, avian influenza viruses will infect people directly exposed to infected poultry (as has been occurring mainly in the Far East since 1997) but may not necessarily evolve into pandemic viruses.
- Such a strain could first emerge anywhere, including Missouri, but it is most likely to emerge in the Far East—the birthplace of recent pandemics—because:
 - Human proximity to ducks, other poultry and domestic pigs in farming communities in South East Asia and China, which facilitates mingling of human and animal viruses which may then exchange genetic material, resulting in a new ‘reassorted’ strain.
 - Viruses may directly transfer from birds (or animals) to humans and adapt to become genetically more likely to infect people.
 - Viruses may re-emerge from unrecognized or unsuspected reservoirs.
 - There is already wide dissemination of H5N1 infection in poultry, domestic fowl and wild birds.
- Whenever a new or novel influenza virus is isolated from an infected person, its potential to spread directly from person to person and cause outbreaks of illness needs to be assessed.
- False alarms are likely, but until it is known whether a new virus has developed which resulted in person-to-person transmission, its pandemic potential must remain under consideration and investigation.
- Vaccine for the novel influenza virus will not be available in Missouri before the virus reaches the state.
- Initial distribution of vaccine to Missouri will be extremely limited and must be prioritized to maximize effectiveness.
- Effective antivirals will be in limited supply and must be prioritized to maximize effectiveness.
- Education, public health interventions, basic public health measures and social controls must be relied upon initially to slow the spread of the disease within Missouri.

Assumptions about pandemic disease:

- Susceptibility to the pandemic influenza subtype will be universal.
- The clinical disease attack rate will be 30% in the overall population. Illness rates will be highest among school-aged children (about 40%) and decline with age. Among working adults, an average of 20% will become ill during a community outbreak.
- Of those who become ill with influenza, 50% will seek outpatient medical care.
- The number of hospitalizations and deaths will depend on the virulence of the pandemic virus. Estimates differ about 10-fold between more and less severe scenarios. Vulnerable age groups cannot be predicted with certainty. During annual fall and winter influenza season, infants and the elderly, people with chronic illnesses, and pregnant women are usually at higher risk of complications from influenza infections. In contrast, in the 1918 pandemic, most deaths occurred among young, previously healthy adults.

- The typical incubation period (the time between acquiring the infection until becoming ill) for influenza averages 2 days. We assume this would be the same for a novel strain that is transmitted between people by respiratory secretions.
- People who become ill may shed virus and can transmit infection for one-half to one day before the onset of illness. Viral shedding and the risk for transmission will be greatest during the first 2 days of illness. Children will shed the greatest amount of virus and, therefore are likely to pose the greatest risk for transmission.
- On average a single ill person will transmit about 2 secondary infections. Some estimates from past pandemics have been higher, with up to 3 secondary infections per primary case.
- In an affected community, a pandemic outbreak will last about 6 to 8 weeks. At least 2 pandemic disease waves are likely. Following the pandemic, the new viral subtype is likely to continue circulating and to contribute to seasonal influenza.
- The seasonality of a pandemic cannot be predicted with certainty. The largest waves in the U.S. during 20th century pandemics occurred in the fall and winter. Experience from the 1957 pandemic may be instructive in that the first U.S. cases occurred in June but no community outbreaks occurred until August and the first wave of illness peaked in October.

The Phases of a Pandemic

The phases described have been summarized from the World Health Organization (WHO) global influenza preparedness plan published in 2005. It is important to understand that actual spread of the virus may or may not be described by these phases.

Interpandemic Period:

Phase 1: No new influenza virus subtypes have been detected in humans. An influenza virus subtype that has caused human infection may be present in animals. If present in animals, the risk of human infection or disease is considered low.

Phase 2: No new influenza virus subtypes have been detected in humans. However, a circulating animal influenza virus subtype poses a substantial risk of human disease.

Pandemic Alert Period:

Phase 3: Human infection(s) with a new subtype, but no human-to-human spread, or at most, rare instances of spread to a close contact.

Phase 4: Small cluster(s) with limited human-to-human transmission but spread is highly localized, suggesting that the virus is not well-adapted to humans.

Phase 5: Large cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to humans, but may not yet be fully transmissible (substantial pandemic risk).

Pandemic Period:

Phase 6: Pandemic; increased and sustained transmission in general population.

*******Note of Explanation Related to the Checklists and Phases*******

The Phases and assignment of responsibilities within the plan based on these phases are products of the planning assumptions. As such, the checklists begin with Phase 4 (as the current pandemic status as of February 2006 is Phase 3) based on the assumption that the virus will appear in the Far East and enter the United States and Missouri as a human disease spreading human to human. However, the possibility remains that the novel virus could emerge within the United States, even in Missouri, rather than internationally. If a circulating animal virus subtype appears in Missouri (most likely as a High Pathogenic Avian Influenza in poultry), especially if human infections with this subtype occur (essentially Phases 2 and 3 developing in state), this will precipitate a full-scale emergency response by DHSS and associated LPHAs, the Missouri Department of Agriculture, federal health and agricultural agencies, and impacted industries.

Emergency Responsibilities:

1. The Department of Health and Senior Services (DHSS) has primary responsibility to safeguard the health of the people of the state and all its subdivisions and will respond in the event of Pandemic Influenza to limit the impact on public health. These actions will limit the impact on the social and economic infrastructure of the state. DHSS will serve to support the local public health agencies (LPHAs) in this effort, and lead the response of a coordinated multitude of federal, state, local, and private organizations and agencies.
2. The following pages lay out the specific responsibilities for both DHSS and coordinated agencies and organizations during the Phases of Pandemic response.
3. The attached flowchart outlines these responsibilities and activities in graphic form. (flowchart under revision at this time)

Organization:

Department of Health and Senior Services

For Organizational Chart and Description of Divisions see:

<http://dhssnet/OrgCharts/index.html>

Glossary of Acronyms/Definitions

BCDCP: Bureau of Communicable Disease Control and Prevention
BIAA: Bureau of Immunization Assessment and Assurance
CDC: Centers for Disease Control and Prevention
CERT: Center for Emergency Response and Terrorism
CLPHS: Center for Local Public Health Services
DCPH: Division of Community and Public Health
DHSS: Missouri Department of Health and Senior Services
DRL: Division of Regulation and Licensure
DSDS: Division of Senior and Disability Services
DSR: Department Situation Room
LPHA: Local Public Health Agency
MHA: Missouri Hospital Association
OEC: Office of Emergency Coordination
OOE: Office of Epidemiology
POD: Point of Dispensing
SDCEE: Section for Disease Control and Environmental Epidemiology
SEMA: Missouri State Emergency Management Agency
SNS: Strategic National Stockpile
SPHL: Missouri State Public Health Laboratory

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Organization:
Department of Health and Senior Services Pandemic Response Roles
Position
DSR or SEOC Function

Director – Department of Health and Senior Services
SEOC Team, Health and Medical (ESF Annex 8)

Pandemic Alert Period: Phase 4

- ❑ Will be notified by Director of DCPH of Phase shift.
- ❑ After briefing will consult with key staff and direct appropriate actions.

Pandemic Alert Period: Phase 5

- ❑ Will be notified by Director of DCPH of Phase shift.
- ❑ After briefing will (as necessary):
 - Notify Governor's Office.
 - Declare a Public Health Emergency.
 - Request Deputy Director to identify staff not working on pandemic flu and reassign and to develop work schedule.
 - Activate the Department Situation Room in conjunction with the CERT Director.
 - Notify the Local Public Health Agencies to:
 - Implement their pandemic flu plans.
 - Communicate updates.

Pandemic Period: Phase 6

- ❑ Will be notified by Director of DCPH of Phase shift.
- ❑ After briefing will:
 - Maintain the declaration of Public Health Emergency.
 - Update the Governor's Office on anticipated actions.
 - Have Deputy Director reduce programmatic functions to maintenance operations and designate available staff to assist in data entry, surveillance, vaccinations, medication distribution, etc.

Director – Division of Community and Public Health
DSR Commander Station
DSR Surveillance/Investigations/Epidemiology Station
DSR Community Management Station

Pandemic Alert Period: Phase 4

- Will be notified by State Epidemiologist of the Phase shift.
 - Direct DCPH staff to assess and prepare response.
- Notify Daily List (Daily List is: Director and Deputy Director of DHSS, Director of CERT, SPHL, DRL, DSDS, and CLPHS, Administrator of SDCEE, Chief of the Office of Public Information, CPH Emergency Coordination, BIAA and BCDCP, General Council, Medical Advisors and State Epidemiologist).
- Lead briefing discussions. (*Briefing will be set up by CERT.*) Provide overview of ongoing DHSS activities with Daily List.

Pandemic Alert Period: Phase 5

- Will be notified by State Epidemiologist of the Phase shift.
 - Direct DCPH staff to assess and prepare response.
- Notify Daily List.
- Lead briefing discussions. (*Briefing will be set up by CERT.*) Provide overview of ongoing DHSS activities with Daily List.
- Project effects of the novel influenza outbreak.
- Discuss major elements of enhanced surveillance.
- Discuss vaccine/antiviral plan.
- Recommend priority vaccination and antiviral distribution.
- Discuss communication strategies for LPHAs, hospitals and public.

Pandemic Period: Phase 6

- Will be notified by State Epidemiologist of the Phase shift.
 - Direct DCPH staff to assess and prepare response.
- Notify Daily list.
- Provide updates and briefings.

Director - Center for Emergency Response and Terrorism
DSR Commander Station
DSR Support Station

Pandemic Alert Period: Phase 4

- Will be notified by State Epidemiologist of the Phase shift.
- Set up briefing for Director of DCPH.
- Communicate with internal and external staff by issuing a Health Alert.

Pandemic Alert Period: Phase 5

- ❑ Will be notified by State Epidemiologist of the Phase shift.
- ❑ Set up briefing for Director of DCPH.
- ❑ After briefing, notify SEMA.
- ❑ Stand-up DSR, as directed by the Director of DHSS.
- ❑ Communicate with internal and external staff by issuing a Health Alert.

Pandemic Period: Phase 6

- ❑ Will be notified by State Epidemiologist of a Phase shift.
- ❑ Set up briefing for Director of DCPH.
- ❑ Notify SEMA.
- ❑ Communicate with internal and external staff by issuing a Health Alert.

Chief, Office of General Council

Federal Guidance on legal affairs at:

**<http://www.hhs.gov/pandemicflu/plan/appendix.html>
and <http://www.hhs.gov/pandemicflu/plan/part2.html>**

Throughout the Pandemic Period

After briefing by Director of DCPH will:

- ❑ Provide legal counsel.
- ❑ Assist in updating documents as needed.
- ❑ Serve as a liaison to other agencies legal staff.
- ❑ Provide guidance and direction as needed.

State Epidemiologist, Office of Epidemiology

Federal Clinical Guidance: <http://www.hhs.gov/pandemicflu/plan/pdf/S05.pdf>

Pandemic Alert Period: Phase 4

- ❑ Will be notified by CDC of Phase shifts.
- ❑ Notify the Director of DCPH of the change in alert status.
- ❑ Notify the Director of CERT of the change in alert status.
- ❑ Participate in briefings.
- ❑ Carry out normal duties as they apply to outbreaks.
- ❑ Monitor bulletins and events related to influenza and engage in vigorous proactive communications with CDC related to the novel influenza virus.

Pandemic Alert Period: Phase 5

- ❑ Monitor bulletins from CDC regarding virologic, epidemiologic and clinical findings associated with new variants isolated within and outside of the United States.
- ❑ Notify the Director of DCPH of the change in alert status.
- ❑ Notify the Director of CERT of the change in alert status.
- ❑ Participate in conference calls.
- ❑ Continue to carry out duties as they apply to outbreaks.

Pandemic Period: Phase 6

- ❑ Notify the Director of DCPH of the change in alert status.
- ❑ Notify the Director of CERT of the change in alert status.
- ❑ Continue to carry out duties as they apply to outbreaks.

Chief – Office of Public Information DSR Public Information Station

For Federal Guidance on:

Public Communications, see: <http://www.hhs.gov/pandemicflu/plan/pdf/S10.pdf>

Pandemic Alert Period: Phase 4

After briefing by Director of DCPH will:

- ❑ Coordinate and control public information.
- ❑ Develop key messages for media and general public.
- ❑ Coordinate messages with the Office of the Governor.
- ❑ Reexamine prepared media releases.
- ❑ Update media releases if necessary.
- ❑ Review and be prepared to use Public Information Emergency Communications Plan.
- ❑ Check for availability of key spokespeople.
- ❑ Brief key spokespeople as necessary.
- ❑ Finalize communications strategy with Daily List.
- ❑ Consult with Department experts if necessary.
- ❑ Prepare for media and public inquiries.
- ❑ Participate in/arrange media release and press briefings.
- ❑ Schedule media informational workshops in several locations throughout the state.
- ❑ Ensure web site information is updated routinely.
- ❑ Be prepared to expand hotline to 10 lines and add DHSS call handlers.

Pandemic Alert Period: Phase 5

After briefing by Director of DCPH will:

- Continue in coordinating and controlling information as above.
- Develop new messages in accordance with changes in the outbreak.

Pandemic Period: Phase 6

After briefing by Director of DCPH will continue as above.

- Continue as above.

Administrator – Section for Disease Control and Environmental Epidemiology DSR Surveillance/Investigations/Epidemiology Station

Federal Guidance on:

Travel: <http://www.hhs.gov/pandemicflu/plan/pdf/S09.pdf>

Vaccine: <http://www.hhs.gov/pandemicflu/plan/pdf/S06.pdf>

Antivirals: <http://www.hhs.gov/pandemicflu/plan/pdf/S07.pdf>

Infection Control: <http://www.hhs.gov/pandemicflu/plan/pdf/S04.pdf>

Clinical Guidance: <http://www.hhs.gov/pandemicflu/plan/pdf/S05.pdf>

Surveillance: <http://www.hhs.gov/pandemicflu/plan/pdf/S01.pdf>

Pandemic Alert Period: Phase 4

After instruction from Director of DCPH will:

- Instruct the Bureau of Immunization Assessment and Assurance to:
 - Coordinate with the SNS Stockpile Manager to:
 - Review Appendix A.
 - Review vaccination and antiviral distribution plan.
 - Finalize establishment of priority groups in each community statewide.
 - Coordinate with LPHAs, hospitals, and BCDCP on PODs.
 - Coordinate with SPHL on testing.
 - Monitor staffing/workload gaps.
 - Work with CERT in the preparation of Health Alerts.
- Instruct the BCDCP to:
 - Coordinate with the Offices of Epidemiology and Coordination.
 - Evaluate resources and prioritize staffing for pandemic response.
 - Work with CERT in the preparation of Health Alerts.
 - Coordinate with the BIAA.
 - Brief the Regional Senior Epidemiologists with instructions to:
 - Participate in briefings.
 - Carry out normal duties as they apply to outbreaks.
 - Monitor bulletins and events related to influenza.
 - Instruct the Regional Epidemiologists to:
 - Review local plan – POD sites, vaccination/drug plan.
 - Meet with other regional staff to assure consistency in message and plan.
 - Initiate heightened surveillance, to include both active and passive surveillance.

- Assure that all newly diagnosed cases are entered into the appropriate data surveillance system in a timely manner to provide current data for analysis.
 - Assist assigned counties as needed.
- Use statewide surveillance system to assure data can be analyzed in conjunction with OEC.
- Work with state planner to assure coordinated effort among regional staff.

Pandemic Alert Period: Phase 5

After instruction from Director of DCPH will:

- Brief new employees assigned to work on pandemic influenza.
- Evaluate resources available to manage the outbreak.
- Work with CERT in the preparation of Health Alerts.
- Provide updates to the Director of DCPH.
- Instruct the BIAA to continue as above.
- Instruct the BCDCP to continue as above, in addition, the Chief, BCDCP will instruct the Regional Senior Epidemiologists to:
 - Continue as above in addition to other emergency response duties.
 - Maintain communication with regional epidemiology specialists and disease investigation staff.
 - Analyze regional and state data from statewide surveillance system in conjunction with OEC.
 - Brief additional regional staff assigned to work on pandemic influenza.
 - Assure communication with counties and regional emergency response staff continues to occur.
 - Coordinate with state emergency response planners to evaluate resources available to vaccinate and manage the outbreak within assigned area.

Pandemic Period: Phase 6

After instruction from Director of DCPH will:

- Continue as above in addition to other emergency response duties.
- Instruct the BCDCP to continue as above, in addition, the Chief, BCDCP will instruct the Regional Senior Epidemiologists to:
 - Work with regional and county staff in assigned area to implement vaccine distribution and opening of POD sites.
 - Work with state planner to assure coordinated effort among regional staff.
 - Continue as above in addition to other emergency response duties.

**Chief-Office of Emergency Coordination
DSR Surveillance/Investigations/Epidemiology Station**

Federal Guidance on:

Travel: <http://www.hhs.gov/pandemicflu/plan/pdf/S09.pdf>

Vaccine: <http://www.hhs.gov/pandemicflu/plan/pdf/S06.pdf>

Antivirals: <http://www.hhs.gov/pandemicflu/plan/pdf/S07.pdf>
Infection Control: <http://www.hhs.gov/pandemicflu/plan/pdf/S04.pdf>
Clinical Guidance: <http://www.hhs.gov/pandemicflu/plan/pdf/S05.pdf>
Surveillance: <http://www.hhs.gov/pandemicflu/plan/pdf/S01.pdf>

Pandemic Alert Period: Phase 4

After instruction by Director of DCPH will:

- Coordinate heightened surveillance efforts, including:
 - BT and Passive Surveillance, Sentinel Providers.
 - Daily monitoring of hospitals.
 - Communicate with LPHAs.
 - Communicate with surveillance sites.
 - Analysis of data.
- Coordinate with SDCEE.
- Coordinate with CERT.
- Coordinate with OOE.
- Coordinate with SPHL.
- Coordinate with CLPHS.
- Provide updates to the Director of DCPH.

Pandemic Alert Period: Phase 5

After instruction by Director of DCPH will:

- Continue the Coordination of heightened surveillance efforts (as above), and (if necessary):
 - Monitor non-hospital related deaths.
 - Monitor adverse events related to vaccines and anti-virals.
- Continue coordination activities as above.
- Provide updates to the Director of DCPH.

Pandemic Period: Phase 6

After briefing by Director of DCPH will:

- Continue the coordination of heightened surveillance efforts (as above).
- Continue coordination activities as above.
- Provide updates to the Director of DCPH.

Section For Health Standards and Licensure
<http://www.hhs.gov/pandemicflu/plan/pdf/S03.pdf>

Pandemic Alert Period: Phase 4

After briefing from Director of DCPH will:

- Ask hospitals to determine availability of critical equipment and medicines.

Pandemic Alert Period: Phase 5

After briefing from Director of DCPH will:

- ❑ Update POD hospitals, providers, Missouri Hospital Association.
- ❑ Activate local response plans.

Pandemic Period: Phase 6

After briefing from Director of DCPH will:

- ❑ Update POD hospitals, providers, Missouri Hospital Association.
- ❑ Continue as above.

Director – State Public Health Laboratory

DSR Laboratory Workstation

Federal Guidance on:

Laboratory Diagnostics at: <http://www.hhs.gov/pandemicflu/plan/pdf/S02.pdf>

Pandemic Alert Period: Phase 4

After briefing from DCPH Director will:

- ❑ Enhance surveillance for the novel virus throughout the state by supplying such information on sample submission and protocols as necessary to LRN laboratories, using Health Alerts created in cooperation with SDCEE and CERT and by other communication means if necessary.
- ❑ Increase communications with CDC to ensure the best information regarding strain typing, reagent specifics, and other such information related to the novel virus is available to the SPHL and associated network of partners.
- ❑ Redirect staffing, inspect equipment, monitor supplies, and other such steps as needed in preparation for testing the novel virus.
- ❑ Communicate expeditiously to the DCPH, any confirmation of the novel virus within the state.
- ❑ Coordinate, with LPHAs, in providing technical consultation, necessary sampling kits, and other assistance as may be needed for surveillance of the novel virus.

Pandemic Alert Period: Phase 5

After briefing from DCPH Director will:

- ❑ Continue as above in coordination and communications with DCPH, LRN, LPHAs, CDC, and so forth.
- ❑ Update, in conjunction with SDCEE and CERT, Health Alerts modifying (by prioritization of regions, details of sample submission, etc.) the enhanced surveillance effort for the novel virus.
- ❑ Communicate expeditiously to the DCPH, trends and movement of the novel virus within the state.

Pandemic Period: Phase 6

After briefing from DCPH Director will:

- ❑ Continue as above.

Director-Center for Local Public Health Services

DSR Community Management Workstation

Federal Guidance on:

Community Planning at: <http://www.hhs.gov/pandemicflu/plan/part2.html>

Pandemic Alert Period: Phase 4

After Briefing from DCPH Director will:

- ❑ Maintain communication with the Administrator of SDCEE.
- ❑ Maintain communication with the DSR (once activated).
- ❑ Maintain communication with LPHA Administrators.
- ❑ Poll LPHAs to determine needed doses of vaccine and antivirals for identified high priority populations.
- ❑ Coordinate with the Chief, BIAA and SNS Stockpile Manager on vaccine and antiviral information.
- ❑ Interpret DHSS guidance for LPHAs, provide advice, maintain relationships, answer questions, and make referrals.
- ❑ Assist in the assessment of capacities and capabilities of the LPHAs.
- ❑ Serve as a conduit for information between DHSS and the LPHAs.
- ❑ Redirect staff and resources within CLPHS as necessary.
- ❑ Maintain knowledge of the deployment level of the LPHA workforce.
- ❑ Recommend LPHA representatives to provide local input.
- ❑ Work with DCPH Director to consider easing routine contract work of LPHAs to free staff for the pandemic effort.

Pandemic Alert Period: Phase 5

- ❑ Continue as above.

Pandemic Period: Phase 6

- ❑ Continue as above.

Administrator-Section for Long Term Care
DSR Health Resources Management Workstation

Pandemic Alert Period: Phase 4

After briefing from Director of DCPH will:

- Instruct the 7 regional offices to determine from all long term care (LTC) facilities the number and location of high-risk residents; and the availability of medicines and ancillary medical treatments.

Pandemic Alert Period: Phase 5

After briefing from Director of DCPH will:

- Update the 7 regional offices, facilities, Missouri Health Care Association, Missouri Homes for the Aged, Missouri Assisted living Association, and Missouri League of Nursing Home Administrators.
- Activate local response plans.

Pandemic Alert Period: Phase 6

After briefing from Director of DCPH will:

- Continue as above.

Responsibilities of Partnered Agencies and Organizations

Centers for Disease Control

Pandemic Alert Period: Phase 4

- Publish bulletins re: virologic, epidemiologic, and clinical findings about new variants isolated within or outside of the U.S.
- Notify the State Epidemiologist that a Phase shift has occurred.
- Supply the State Public Health Lab with appropriate reagents to detect and identify the novel strain when they become available.
- Convene the National Vaccine Program Office pandemic flu working group.

Pandemic Alert Period: Phase 5

- Publish weekly (or as needed) bulletins regarding virologic, epidemiologic, and clinical findings associated with new variants isolated within or outside of the U.S.
- Notify the State Epidemiologist that a Phase shift has occurred.
- Activate electronic mail distribution lists to provide influenza activity information to State Program Managers (State Epidemiologist, Director DCPH, Chief BIAA or designees at DHSS will receive these messages).

- ❑ Schedule regular conference calls with State Program Managers to update them on global pandemic activity and to ensure coordination of programmatic activities.

Pandemic Period: Phase 6

- ❑ Supply to state vaccine and antivirals as appropriate.
- ❑ Notify the State Epidemiologist that a Phase shift has occurred.

Local Public Health Agencies

Pandemic Alert Period: Phase 4

After briefing by Daily List will:

- ❑ Activate heightened surveillance.
- ❑ Communicate updates to POD local hospitals, etc., and work with them to determine availability of critical equipment/medications.

Pandemic Alert Period: Phase 5

After briefing by Daily List will:

- ❑ Implement Pandemic Flu Plans.
- ❑ Activate heightened surveillance.
- ❑ Communicate updates to POD local hospitals, etc., and work with them to determine availability of critical equipment/medications.

Pandemic Period: Phase 6

After briefing by Daily List will:

- ❑ Work with local hospitals, the SNS Stockpile Manager and the BIAA in implementing vaccine distribution.
- ❑ Activate drug distribution process.
- ❑ Full activation of influenza response plan.

State Emergency Management Agency

Pandemic Alert Period: Phase 4

- ❑ Will be notified of the Phase shift by CERT.
- ❑ Assess resources.
- ❑ Provide communication linkages.

Pandemic Alert Period: Phase 5

- ❑ Will be notified of the Phase shift by CERT.
- ❑ Outline program initiatives by DHSS.

- ❑ Consider formation of a Joint Public Information Center.
- ❑ Consider activation of partial SEOC.

Pandemic Period: Phase 6

- ❑ Will be notified of the Phase shift by CERT.
- ❑ Consider full activation of SEOC.

Mental Health

<http://www.hhs.gov/pandemicflu/plan/pdf/S11.pdf>

Pandemic Alert Period: Phase 4

- ❑ Will be notified of the Phase shift by CERT.
- ❑ Evaluate mental health assets and anticipated resources required to meet the threat at hand.
- ❑ Notify mental health experts and other partners to be ready for possible activation in response to a public health emergency.
- ❑ Provide *ad hoc* training and orientation for those mental health professionals who may be deployed to support emergency-related public health response efforts (mass prophylaxis sites, local hospitals, alternate care facilities, etc.).
- ❑ Provide consultation to local mental health providers in adapting their response for special populations (hospital and healthcare workers, children, older adults and ethnic communities, first responders, home-bound, etc.).
- ❑ Provide consultation and training for frontline public health workers, such as state and local public health department staff, physicians, nurses, medical technicians and others in anticipating and responding to epidemic-related mental health behaviors such as stress reactions, misattribution of normal arousal symptoms, and panic.
- ❑ Disseminate psycho-educational materials to various populations addressing the mental health impact of the pandemic event, as well as strategies for coping with fear and anxiety and access to mental health services.
- ❑ Conduct mental health-specific needs assessments and rapid identification of vulnerable populations and gaps in mental health services that may exacerbate the psychosocial response to the event.

Pandemic Alert Period: Phase 5

- ❑ Will be notified of the Phase shift by CERT.
- ❑ Continue with the above. In addition:
 - Utilize existing relationships with Voluntary Organizations Active in Disasters (VOAD) and faith-based organizations in coordinating and unifying mental health messages and strategies.
 - Work with PIOs to craft public service mental health messages in support of the overall emergency public health response.

- Increase recruitment of qualified outreach workers to provide community-based crisis counseling and psycho-education in rural and otherwise difficult to reach communities.
- Update and modify online mental health/pandemic-related websites.
- Deploy counselors to deliver multi-lingual, multi-cultural mental health support services directed at all critical outbreak-related functional areas (SNS Receiving, Storage and Staging sites, PODs, public health headquarters, emergency medical service bases of operation, etc.).
- Provide stress management services and training for those public health personnel working in high-demand settings.
- Deploy staff (life safety issues notwithstanding), to high-emotion locations (morgues, funeral homes, hospitals, pediatric units, pharmacies, etc.) to de-escalate agitated individuals.
- Coordinate with other crisis counseling programs (American Red Cross, county prosecutor's victims advocates, etc.) to ensure the interoperability of counseling services at all points within the community.
- Deliver (life safety issues notwithstanding) support services to schools and other institutions to assist staff, students/residents, etc., with grief and bereavement issues and the cumulative stresses related to a protracted health emergency.
- Offer ongoing stress management activities for crisis counselors and other mental health workers engaged in any outbreak-related efforts.
- Offer ongoing stress management services to personnel within the incident command and control structure of the emergency management system.
- Deliver specialized mental health support services to medical professionals, first responders, and public health workers to address stress management concerns to reduce the potential for adverse psychological reactions within their workforces.

Pandemic Period: Phase 6

- Will be notified by CERT of the Phase shift.
- Continue with the above. In addition:
 - Provide ongoing support for clergy, morticians and funeral workers.
 - Promote the development of grass roots, community self-help groups to address the long-term emotional consequences of the pandemic.
 - Promote and offer technical assistance and other peer-support programs to first responders to address the potential long-term emotional impact of the event.
 - Deliver debriefing and other post-event psychological services for first responders, public health and other professionals involved in the event.
 - Work with community mental health provider agencies, academic institutions and other specialists to develop treatment models to

address the lingering or long-term emotional consequences of the pandemic event.

- Maintain a telephone help-line providing tele-counseling, updated resources and facilitated referrals for behavioral health services, as well as online resources.
- Maintain online psycho-educational and resource/referral websites developed during earlier phases.

Appendix A: Vaccine and Antiviral Delivery
<http://www.hhs.gov/pandemicflu/plan/appendixd.html>

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. In recent years, manufacturers have predicted that 90-100 million doses would be available over a six- to eight-month period.

Except for some children 8 years of age and younger, effective immunization is generally achieved with a single dose of vaccine. Approximately 90% of the vaccine is administered by the private sector and is directed toward high-risk individuals as defined by the Advisory Committee on Immunization Practices (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 are shorter, significant shortages and delays in vaccine availability will likely arise.
- Limited allotments of vaccine will be shipped to states, probably on a weekly basis.
- 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, it may be necessary to give a second dose of vaccine given approximately 30 days after the initial administration.

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 organized and coordinated so as to maximize the public's health and safety.

2. Assumptions

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

- **Supply**

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

- **Distribution Activity**

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

- **Shortages**

The vaccine allotment may not be adequate to meet the state’s entire need for vaccine. That is, vaccine shortages are expected and may be so extensive that the will not be adequate to protect all individuals with a critical role in managing the crisis.

- **Costs**

The state of Missouri 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 clear. Federal resource assistance may include 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.

- **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. This information must be entered into the state’s electronic immunization registry.

- **Centralized Control**

Appropriate management of 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 declare 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

Missouri will base its emergency vaccine delivery in large part upon its current distribution system, which is based in the Department of Health and Senior Services’ Bureau of Immunization Assessment and Assurance and the contract vaccine distributor.

That infrastructure is currently used to efficiently distribute childhood vaccine. In 2004, an average of 76,500 doses of childhood vaccine was distributed each month. This distribution program incorporates systems, policies, and procedures that can be adapted to assist the state in its pandemic vaccine distribution goals and objectives. Specifically, the current distribution system includes:

- A contract pharmacy warehouse 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, capable of preparing shipments for up to 35 different sites per day, with shipments averaging 6,000 doses per day, for shipment 3 days per week.
- Experience with providing rapid, accurate service with the ability to complete and ship orders within 2 to 3 days of receipt.

4. Pandemic Vaccine Supply and Distribution

- **Supply Needs versus Allocation**

Missouri had approximately 5.7 million residents in the year 2003. Faced with a novel influenza virus, estimates suggest that Missouri could need over 11 million doses of vaccine to fully immunize its population. 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.

- **Ordering and Distribution**

Assuming that the need will exceed vaccine availability, Missouri 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 Missouri's contract vaccine distributor. If the manufacturers and the CDC allow multiple shipping sites, local public health agencies or previously identified community partners in selected large counties will be targeted for direct shipment. In order for counties to be considered for direct receipt of vaccine, the following conditions must be met:

- The LPHA 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 local public health agency has developed a clear community-based plan to ensure vaccine will be quickly and properly redistributed throughout the county.

The contract vaccine distributor estimates it would be able to store one million 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 one million doses were needed. Current activities are underway to identify the state's partners, such as local hospitals, that could assist with these short-term emergency storage needs.

The Bureau of Immunization Assessment and Assurance and the contract vaccine distributor staff will focus on redistributing the flu vaccine as quickly as possible to local communities.

5. Local Public Health Agency Activity

For the majority of Missouri's 115 counties, the local vaccine storage site will be based at the local public health agency. 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 local public health agency will be responsible for developing a local plan that conforms to the priorities set forth below. Specifically, local public health agencies 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 local public health agency.
- Identify the community partners who will work with the local public health agency and DHSS 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. (Note: The Bureau of Immunization Assessment and Assurance is currently working with the SNS Program Manager and awaiting further guidance from the CDC to determine the most expeditious manner of vaccine distribution documentation.)
- 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 receipt of 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 public health agency's plan. Examples of sites that local communities should consider for direct shipment from the contract vaccine distributor include:
 - Hospitals and medical centers.
 - Tertiary care centers with extensive outreach clinics and services.
 - Large provider practices serving over 1,000 people per month.

- Large residential facilities with over 500 bed serving elderly, disabled, or other dependent populations.

The contract vaccine distributor will continue shipments of vaccine to local public health agency and other identified community sites as necessary to address community needs. Shipments may occur weekly or monthly depending on vaccine supply and usage. If local public health agencies need additional staff to manage excessively large shipments or to continue vaccine management and shipping activity for extended hours or over non-traditional workdays, staff from DHSS will be recruited. When developing a redistribution plan, local public health agencies 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, local public health agencies 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 public health agencies, will be directed to contact the Bureau of Immunization Assessment and Assurance. 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 for Vaccine

- **Table of Priority Groups**

Tier	Subtier	Population	Rationale
1	A	<ul style="list-style-type: none"> • Vaccine and antiviral manufacturers and others essential to manufacturing and critical support (~40,000) • Medical workers and public health workers who are involved in direct patient contact, other support services essential for direct patient care, and vaccinators (8-9 million) 	<ul style="list-style-type: none"> • Need to assure maximum production of vaccine and antiviral drugs • Healthcare workers are required for quality medical care (studies show outcome is associated with staff-to-patient ratios). There is little surge capacity among healthcare sector personnel to meet increased demand
	B	<ul style="list-style-type: none"> • People > 65 years with 1 or more influenza high-risk conditions, not including essential hypertension (approximately 18.2 million) • People 6 months to 64 years with 2 or more influenza high-risk conditions, not including essential hypertension (approximately 6.9 million) • People 6 months or older with history of hospitalization for pneumonia or influenza or other influenza high-risk condition in the past year (740,000) 	<ul style="list-style-type: none"> • These groups are at high risk of hospitalization and death. Excludes elderly in nursing homes and those who are immunocompromised and would not likely be protected by vaccination
	C	<ul style="list-style-type: none"> • Pregnant women (approximately 3.0 million) • Household contacts of severely immunocompromised people who would not be vaccinated due to likely poor response to vaccine (1.95 million with transplants, AIDS, and incident cancer x 1.4 household contacts per person = 2.7 million people) • Household contacts of children <6 month olds (5.0 million) 	<ul style="list-style-type: none"> • In past pandemics and for annual influenza, pregnant women have been at high risk; vaccination will also protect the infant who cannot receive vaccine. • Vaccination of household contacts of immunocompromised and young infants will decrease risk of exposure and infection among those who cannot be directly protected by vaccination

	D	<ul style="list-style-type: none"> Public health emergency response workers critical to pandemic response (assumed one-third of estimated public health workforce=150,000) Key government leaders 	<ul style="list-style-type: none"> Critical to implement pandemic response such as providing vaccinations and managing/monitoring response activities Preserving decision-making capacity also critical for managing and implementing a response
2	A	<ul style="list-style-type: none"> Healthy 65 years and older (17.7 million) 6 months to 64 years with 1 high-risk condition (35.8 million) 6-23 months old, healthy (5.6 million) 	<ul style="list-style-type: none"> Groups that are also at increased risk but not as high risk as population in Tier 1B
	B	<ul style="list-style-type: none"> Other public health emergency responders (300,000 = remaining two-thirds of public health work force) Public safety workers including police, fire, 911 dispatchers, and correctional facility staff (2.99 million) Utility workers essential for maintenance of power, water, and sewage system functioning (364,000) Transportation workers transporting fuel, water, food, and medical supplies as well as public ground public transportation (3.8 million) Telecommunications/IT for essential network operations and maintenance (1.08 million) 	<ul style="list-style-type: none"> Includes critical infrastructure groups that have impact on maintaining health (e.g., public safety or transportation of medical supplies and food); implementing a pandemic response; and on maintaining societal functions
3		<ul style="list-style-type: none"> Other key government health decision-makers (estimated number not yet determined) Funeral directors/embalmers (62,000) 	<ul style="list-style-type: none"> Other important societal groups for a pandemic response but of lower priority
4		<ul style="list-style-type: none"> Healthy people 2-64 years not included in above categories (179.3 million) 	<ul style="list-style-type: none"> All people not included in other groups based on objective to vaccinate all those who want protection

Definitions and rationales for priority groups as listed above

1. Healthcare workers and essential healthcare support staff

a) Definition

Healthcare workers (HCW) with direct patient contact (including acute-care hospitals, nursing homes, skilled nursing facilities, urgent care centers, physician's offices, clinics, home care, blood collection centers, and EMS) and a proportion of people working in essential healthcare support services needed to maintain healthcare services (dietary, housekeeping, admissions, blood collection center staff, etc.). Also included are healthcare workers in public health with direct patient contact, including those who may administer vaccine or distribute influenza antiviral medications, and essential public health support staff for these workers.

b) Rationale

The pandemic is expected to have substantial impact on the healthcare system with large increases in demand for healthcare services. HCW will treat influenza-infected patients and will be at risk of repeated exposures. Further, surge capacity in this sector is low. To encourage continued work in a high-exposure setting and to help lessen the risk of healthcare workers transmitting influenza to other patients and HCW family members, this group was given high priority. In addition, increases in bed/nurse ratios have been associated with increases in overall patient mortality. Thus, substantial absenteeism may affect overall patient care and outcomes.

2. Groups at high risk of influenza complications

a) Definition

People 2-64 years with a medical condition for which influenza vaccine is recommended, and all people 6-23 months and 65 years and older. Excludes nursing home residents and severely immunocompromised people who would not be expected to respond well to vaccination.

b) Rationale

These groups were prioritized based on their risk of influenza-related hospitalization and death and also their likelihood of vaccine response. Information from prior pandemics was used whenever possible, but information from interpandemic years was also considered. Nursing home residents and severely immunocompromised people would be prioritized for antiviral treatment and/or prophylaxis and vaccination of healthcare workers and household contacts who are most likely to transmit influenza to these high risk groups.

3. Critical infrastructure

a) Definitions and rationale

Those critical infrastructure sectors that fulfill one or more of the following criteria: have increased demand placed on them during a pandemic, directly support reduction in deaths and hospitalization; function is critical to support the healthcare sector and other emergency services, and/or supply basic necessities and services critical to

support of life and healthcare or emergency services. Groups included in critical infrastructure are needed to respond to a pandemic and to minimize morbidity and mortality, and include the following sectors:

- People directly involved with influenza vaccine and antiviral medication manufacturing and distribution and essential support services and suppliers (e.g., growers of pathogen-free eggs for growth of vaccine virus) production activities.
- Key government leaders and health decision-makers who will be needed to quickly move policy forward on pandemic prevention and control efforts.
- Public safety workers (firefighters, police, and correctional facility staff, including dispatchers) are critical to maintaining social functioning and order and will contribute to a pandemic response, for example by ensuring order at vaccination clinics and responding to medical emergencies.
- Utility service workers (water, power, and sewage management) provide services essential to the healthcare system as well as to preventing additional illnesses aggravated by lack of these services.
- Transportation workers who maintain critical supplies of food, water, fuel, and medical equipment and who provide public transportation, which is essential for provision of medical care and transportation of healthcare workers to work and transportation of ill people for care.
- Telecommunication and information technology services critical for maintenance and repairs of these systems are also essential as these systems are now critical for accessing and delivering medical care and supporting all other critical infrastructure.
- Mortuary services will be substantially impacted due to the increased numbers of deaths from a pandemic, especially among the elderly, a growing segment of the population.

4. Public health emergency response workers

a) Definition

This group includes people who do not have direct patient care duties, but are essential for influenza surveillance, assessment of the pandemic impact, allocation of public health resources for the pandemic response, development and implementation of public health policy as part of the response, and development of guidance as the pandemic progresses.

b) Rationale

People in this sector have been critical for past influenza vaccine pandemics and influenza vaccine shortages, especially as little surge capacity may be available during a pandemic.

5. People in skilled nursing facilities

a) Definition

Patients residing in skilled nursing facilities. Not included in this group are people in

other residential settings (e.g., assisted living) who are more likely to be mobile, in a setting that is less closed, and have decentralized healthcare.

b) Rationale

This group was not prioritized for vaccine because of the medical literature finding poor response to vaccination with outbreaks despite high vaccination rates. Other studies have suggested that vaccination of healthcare workers may be a more effective strategy to prevent influenza in this group. Further, surveillance for influenza can be conducted in this group and antiviral medications used widely for prophylaxis and treatment. Ill visitors and staff should also be kept from visiting nursing home facilities during outbreaks of pandemic influenza. This strategy for pandemic influenza vaccine differs from the aggressive interpandemic vaccination strategy for nursing home residents. It takes into account several factors: 1) these populations are less likely to benefit from vaccine than other groups who are also at high risk; 2) other prevention strategies feasible for this group are not possible among other high-risk groups; 3) the overall morbidity and mortality from pandemic is likely to severely impact other groups of people who would be expected to have a better response to the vaccine; and 4) a more severe shortage of vaccine is anticipated.

6. Severely immunocompromised people

a) Definition

People who are undergoing or who have recently undergone bone marrow transplantation and others with severe immunodeficiency (e.g., AIDS patients with CD4 counts <50, children with SCID syndrome). The numbers of people in these categories is likely much smaller than the anticipated number assumed in tiering above, but sources for more specific estimates have not been identified.

b) Rationale

These groups have a lower likelihood of responding to influenza vaccination. Thus, strategies to prevent severe influenza in this group should include vaccination of healthcare workers and household contacts of severely immunocompromised people and use of antiviral medications. Consideration should be given to prophylaxis of severely immunocompromised people with influenza antivirals and early antiviral treatment should they become infected.

7. Children <6 months of age

a) Rationale

Influenza vaccine is poorly immunogenic in children <6 months and the vaccine is currently not recommended for this group. In addition, influenza antiviral medications are not FDA-approved for use in children <1 year old. Thus, vaccination of household contacts and out-of-home caregivers of children <6 months is recommended to protect this high-risk group.

Other discussion

There was substantial discussion on priority for children. Four potential reasons were raised for making vaccination of children a high priority:

- At the public engagement session, many participants expressed their belief that children should have high priority for vaccination.
- Children play a major role in transmitting infection, and vaccinating this group could slow the spread of disease and indirectly protect others.
- Children have strong immune systems and will respond well to vaccine, whereas vaccination of the elderly and those with illnesses may be less effective.
- Some ethical frameworks would support a pediatric priority.

ACIP and NVAC did not make children a priority (other than those included in tiers, because of their underlying diseases [Tiers 1B and 2A] or as contacts of high-risk people [Tier 1C]) for several reasons:

- Healthy children have been at low risk for hospitalization and death in prior pandemics and during annual influenza seasons.
- It is uncertain whether vaccination of children will decrease transmission and indirectly protect others. Studies that show this impact, or mathematical models that predict it, rely on high vaccination coverage that may not be possible to achieve given limited supplies in a pandemic.
- The committees recognize that this is an area for further scientific work; that children may be a good target population for live-attenuated influenza vaccine (FluMist®) if it is available; and that education of the public will be needed to provide the rationale for the recommendations.

Reporting Adverse Events to Vaccination

Suspected adverse reactions to vaccination can be reported by providers, vaccine recipients, or anyone with responsibility for the health care of vaccine recipients. They can be reported to the Vaccine Adverse Event Reporting System (VAERS) on the web at <http://www.vaers.org/>, by mail using the VAERS form, which is attached, or by calling 800-822-7967. The designated VAERS coordinator at the Missouri Department of Health and Senior Services can obtain information on all reporting of adverse events by calling 866-628-9891.

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 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.

References

[complete references to come]

ANTIVIRAL AGENTS

1. Introduction

There are many challenges to the effective use of antiviral agents 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 disease, 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 antivirals 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 refined with accepted standards.
- Cost effectiveness of preventive versus therapeutic use should be analyzed for anticipated use in pandemic conditions.

Currently none of these conditions exists. While these issues are being studied, the lack of definitive information or direction creates uncertainty surrounding the appropriate use of these agents in an influenza pandemic.

2. Assumptions

A sufficient quantity of these agents would have to be available to the Central Pharmacy or to specific local public health agencies 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 is determination of distribution sites and specific details on how to use antivirals.

While the primary focus of the state's plan is 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 people 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 contract pharmacy warehouse will control distribution and use of Missouri's allocation of any antivirals. The Department of Health and Senior Services 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 people responsible for the safety and security of the communities most effected by the novel virus.

4. Targeted Recipient Groups

On July 19, 2005, NVAC voted unanimously in favor of the antiviral drug use priority recommendations described here and summarized in Table D-2. These votes followed deliberations of a Working Group, which included as consultants representatives of public and private sector stakeholder organizations and academic experts. There was limited staff level participation from DoD, DHS, and VA. Several ethicists also served as consultants to the Working Group.

The recommendations were made considering pandemic response goals, assumptions on the impacts of a pandemic, and after thorough review of past pandemics, annual influenza disease, data on antiviral drug impacts, and recommendations for pandemic vaccine use.

Recommendations were made to guide planning needed for effective implementation at state and local levels. The committee recognizes that recommendations will need to be reconsidered at the time of a pandemic when information on the available drug supply, epidemiology of disease, and impacts on society are known.

The committee considered the primary goal of a pandemic response to decrease health impacts including severe morbidity and death. Minimizing societal and economic impacts were considered secondary and tertiary goals.

A. Critical assumptions

Assumptions regarding groups at highest risk during a pandemic and impacts on the healthcare system and other critical infrastructures are the same as those underlying the vaccine priority recommendations. Additional assumptions specific to antiviral drugs included:

- Treatment with a neuraminidase inhibitor (oseltamivir [Tamiflu®] or zanamivir [Relenza®]) will be effective in decreasing risk of pneumonia, will decrease hospitalization by about half (as shown for interpandemic influenza), and will also decrease mortality.
- Antiviral resistance to the adamantanes (amantadine and rimantadine) may limit their use during a pandemic.
- The primary source of antiviral drugs for a pandemic response will be the supply of antiviral drugs that have been stockpiled. Before annual influenza seasons, about 2 million treatment courses of oseltamivir are available in the U.S. U.S.-based production of oseltamivir is being established; expected capacity is projected at about 1.25 million courses per month.
- Treating earlier after the onset of disease is most effective in decreasing the risk of complications and shortening illness duration. Generally, treatment should be given within the first 48 hours.

- Assumptions for the amount of antiviral drug needed for defined priority groups are based on the population in those groups, and assumptions that 35% of people in the priority groups will have influenza-like illness, and 75% will present within the first 48 hours and be eligible for treatment. For people admitted to the hospital, the committee assumed that 80% would be treated, as the 48-hour limit may sometimes be relaxed in more ill patients.
- Unlike vaccines, where each tier would be protected in turn as more vaccine is produced, for antiviral drugs, the number of priority groups that can be covered would be known at the start of the pandemic based on the amount of drug that is stockpiled. Additional supply that would become available during the pandemic could provide some flexibility.

Table D-2: Antiviral Drug Priority Group Recommendations*

	Group	Estimated population (millions)	Strategy**	# Courses (millions)		Rationale
				For target group	Cumulative	
1	Patients admitted to hospital***	10.0	T	7.5	7.5	Consistent with medical practice and ethics to treat those with serious illness and who are most likely to die.
2	Health care workers (HCW) with direct patient contact and emergency medical service (EMS) providers	9.2	T	2.4	9.9	Healthcare workers are required for quality medical care. There is little surge capacity among healthcare sector personnel to meet increased demand.
3	Highest risk outpatients—immunocompromised people and pregnant women	2.5	T	0.7	10.6	Groups at greatest risk of hospitalization and death; immunocompromised cannot be protected by vaccination.
4	Pandemic health responders (public health, vaccinators, vaccine and antiviral manufacturers), public safety (police, fire, corrections), and government decision-makers	3.3	T	0.9	11.5	Groups are critical for an effective public health response to a pandemic.
5	Increased risk outpatients—young children 12-23 months old, people >65 yrs old, and people with underlying medical conditions	85.5	T	22.4	33.9	Groups are at high risk for hospitalization and death.
6	Outbreak response in nursing homes and other residential	NA	PEP	2.0	35.9	Treatment of patients and prophylaxis of contacts is effective in stopping

	settings					outbreaks; vaccination priorities do not include nursing home residents.
7	HCWs in emergency departments, intensive care units, dialysis centers, and EMS providers	1.2	P	4.8	40.7	These groups are most critical to an effective healthcare response and have limited surge capacity. Prophylaxis will best prevent absenteeism.
8	Pandemic societal responders (critical infrastructure groups as defined in the vaccine priorities) and HCW without direct patient contact	10.2	T	2.7	43.4	Infrastructure groups that have impact on maintaining health, implementing a pandemic response, and maintaining societal functions.
9	Other outpatients	180	T	47.3	90.7	Includes others who develop influenza and do not fall within the above groups.
10	Highest risk outpatients	2.5	P	10.0	100.7	Prevents illness in the highest risk groups for hospitalization and death.
11	Other HCWs with direct patient contact	8.0	P	32.0	132.7	Prevention would best reduce absenteeism and preserve optimal function.

*The committee focused its deliberations on the domestic U.S. civilian population. NVAC recognizes that Department of Defense (DoD) needs should be given high priority. A separate DoD antiviral stockpile has been established to meet those needs. Other groups also were not explicitly considered in deliberations on prioritization. These include American citizens living overseas, non-citizens in the U.S., and other groups providing national security services such as the border patrol and customs service.

**Strategy: Treatment (T) requires a total of 10 capsules and is defined as 1 course. Post-exposure prophylaxis (PEP) also requires a single course. Prophylaxis (P) is assumed to require 40 capsules (4 courses) though more may be needed if community outbreaks last for a longer period.

***There are no data on the effectiveness of treatment at hospitalization. If stockpiled antiviral drug supplies are very limited, the priority of this group could be reconsidered based on the epidemiology of the pandemic and any additional data on effectiveness in this population.

B. Definitions and rationale for draft priority groups

1. People admitted to hospital with influenza infection

a) Definition

People admitted to acute care facilities (traditional or non-traditional) with a clinical diagnosis of influenza; laboratory confirmation not required. Excludes people admitted for a condition consistent with a bacterial superinfection (e.g., lobar pneumonia developing late after illness onset) or after viral replication and shedding has ceased as documented by a negative sensitive antigen detection test.

b) Strategy

Treatment within 48 hours of symptom onset.

c) Rationale

This group is at greatest risk for severe morbidity and mortality. Although there are no data to document the impacts of antiviral drug treatment among people who already suffer more severe influenza illness, benefit is biologically plausible in people with evidence of ongoing virally mediated pathology (e.g., diffuse pneumonia, ARDS). Providing treatment to those who are most ill is also consistent with standard medical practice, would be feasible to implement, and would be acceptable to the public.

d) Population size

The number of people admitted to hospitals in an influenza pandemic would vary substantially depending on the severity of the pandemic and on ability to expand inpatient capacity, if needed.

e) Unresolved issues

More specific guidance should be provided to healthcare workers on implementing antiviral treatment, including when and when not to treat. In some people with severe illness, the ability to take oral medication or its absorption may be important issues. For infants <1 year old admitted to hospital, decisions about whether to treat with antiviral drugs may depend on the child's age and potential risk versus benefit as the neuraminidase inhibitors are not licensed for use in infants. If possible, data on time from symptom onset to hospital admission, current use of antiviral drug treatment among inpatients, and its impact should be collected during interpandemic influenza seasons.

2. Healthcare workers and emergency medical service providers who have direct patient contact

a) Definition

People providing direct medical services in inpatient and outpatient care settings. Includes doctors, nurses, technicians, therapists, EMS providers, laboratory workers, other care providers who come within 3 feet of patients with influenza, and people performing technical support functions essential to quality medical care.

b) Strategy

Treatment within 48 hours of symptom onset.

c) Rationale

Maintaining high quality patient care is critical to reduce health impacts of pandemic disease and to prevent adverse outcomes from patients with other health conditions presenting for care during the pandemic. Treatment of healthcare providers will decrease absenteeism due to influenza illness and may decrease absenteeism from fear of becoming ill, given the knowledge that treatment can prevent serious complications of influenza. Good data exist documenting the impact of early treatment on duration of illness and time off work, and on the occurrence of complications such as lower respiratory infections. Treatment can be given to healthcare providers, especially inpatient-care providers who can receive drugs from the occupational health clinic. This system would be acceptable to the public, who would recognize the importance of maintaining quality healthcare and would understand that people with direct patient contact are putting themselves at increased risk.

d) Population size

There are about 12.6 million people designated as healthcare workers by the Bureau of Labor Statistics and about 820,000 EMS providers. Among HCWs, it is estimated that two-thirds will provide direct patient care services.

e) Unresolved issues

Further work is needed to hone definitions and estimate population sizes. Implementation issues include the approach to identifying healthcare providers who would be eligible for treatment and where the treatment would be provided, particularly for outpatient care providers.

3. Outpatients at highest risk for severe morbidity or mortality from influenza infection**a) Definition**

The Advisory Committee on Immunization Practices defines groups at high risk (or increased risk) of complications from influenza infection during annual outbreaks on the basis of age (6-23 months and >65 years) and underlying illnesses. Some of this population of about 88 million can be identified as being at highest risk of severe disease and death. These include people with hematopoietic stem cell transplants (HSCT) and solid organ transplants, those with severe immunosuppression due to cancer therapy or hematological malignancy, people receiving immunosuppressive therapy for other illnesses (e.g., rheumatoid arthritis), people with HIV infection and a CD4 count <200; people on dialysis, and women who are in the second or third trimester of pregnancy.

b) Strategy

Treatment within 48 hours of symptom onset.

c) Rationale

Of the large group of people who are at increased risk of severe disease or death from influenza, these groups represent the population at highest risk and who are least likely to be protected by vaccination. Studies show that neuraminidase inhibitor therapy decreases complications and hospitalizations from influenza in high-risk people, and one unpublished study shows a significant decrease in mortality among patients who have undergone a hematopoietic stem cell transplant.

d) Population size

About 150,000 people have had an HSCT or solid organ transplant. Assuming that the period of severe immunosuppression after a cancer diagnosis lasts for 1 year, the population targeted with non-skin, non-prostate cancers would equal the incidence of about 1.35 million people. Based on a birth cohort of 4.1 million, a 28-week risk period during the second and third trimesters, and an 8-week pandemic outbreak in a community, there would be about 400,000 pregnant women included in this risk group. Further work is needed to estimate the size of other immunosuppressed groups.

e) Unresolved issues

Specific definition of included groups and population sizes.

4. Pandemic health responders, public safety workers, and key government decision-makers

a) Definition

Public health responders include those who manufacture vaccine and antiviral drugs, people working at health departments who are not included as healthcare workers, and those who would be involved in implementing pandemic vaccination or other response components. Public safety workers include police, fire, and corrections personnel. Key government decision-makers include chief executives at federal, state, and local levels.

b) Strategy

Treatment within 48 hours of symptom onset.

c) Rationale

Preventing adverse health outcomes and social and economic impacts in a pandemic depends on the implementation of an effective pandemic response. Early treatment of pandemic responders will minimize absenteeism and ensure that vaccination and other critical response activities can be maintained. Implementing early treatment for public health workers and vaccine manufacturers is feasible at workplace settings. Public safety workers prevent intentional and unintentional injuries and death are critical to maintaining social functioning, and will contribute to a pandemic response, for example, by ensuring order at vaccination clinics. A small number of decision-makers at federal, state, and local levels are needed to for an effective pandemic response.

d) Population size

An estimated 40,000 workers who produce pandemic vaccine and antiviral drugs in the U.S., ~300,000 public health workers who would not be included in the HCW category, 3 million public safety workers, and a small number of government decision-makers.

e) Unresolved issues

The exact composition and size of this group must be determined.

5. Outpatients at increased risk of severe morbidity or mortality from influenza

a) Definition

For planning purposes, this group would include those currently designated as high-risk groups, except for those who have been categorized as being at highest-risk and included in a separate category. This increased-risk group includes people 6-23 months and >>65 years old, or who have underlying illnesses defined by the ACIP as associated with increased risk. Definition of this group may change based on the epidemiology of the pandemic.

b) Strategy

Treatment within 48 hours of symptom onset.

c) Rationale

Early treatment has been shown to significantly decrease lower respiratory infections and to reduce the rate of hospitalization in elderly and high-risk populations. By extrapolation and based on the results of one small uncontrolled study, significant reductions of mortality can be expected as well. As these risk groups are familiar to the public from yearly vaccination recommendations, communication would be easy and acceptability high.

d) Population size

About 85.5 million people are included in this group. Although all are at increased risk of annual influenza compared with the healthy under-65 year old population, there are different levels of increased risk for severe complications and death within this category. Further stratification may be possible based on several parameters including number of underlying conditions; recent hospitalization for a high-risk condition, pneumonia, or influenza; and age.

e) Unresolved issues

Stratifying this group into those at greater and lesser risk may be important if antiviral supplies are limited. Implementing treatment will be challenging given that it should be provided as soon as possible to allow for the greatest benefit.

6. Outbreak control

a) Definition

Use of antiviral drugs to support public health interventions in closed settings where an outbreak of pandemic influenza is occurring.

b) Strategy

Treatment of cases and post-exposure prophylaxis of contacts using once daily antiviral medication for 10 days.

c) Rationale

Influenza outbreaks in nursing homes are associated with substantial mortality and morbidity. Nursing home residents also are less likely to respond to vaccination. Post-exposure prophylaxis has been shown to be effective in stopping influenza outbreaks in closed settings.

d) Population size

The number of outbreaks that may occur during a pandemic is unclear. Measures should be implemented to prevent outbreaks including limiting visitors, vaccination of staff, furloughing non-critical staff, and screening and exclusion for illnesses consistent with influenza.

e) Unresolved issues

Should this policy also be implemented in prisons or other settings where explosive spread of illness may occur but the risk for severe complications is not high?

7. Healthcare workers in ER, ICU, EMS, and dialysis settings

a) Definition

Includes all staff in these settings who are required for effective functioning of these health care units.

b) Strategy

Prophylaxis

c) Rationale

Optimally effective functioning of these units is particularly critical to reducing the health impacts of a pandemic. Prophylaxis will minimize absenteeism in these critical settings.

d) Population size

Need to obtain population estimates.

e) Unresolved issues

Population sizes

8. Pandemic societal responders and healthcare workers who have no direct patient contact

a) Definition

This group includes people who provide services that must be sustained at a sufficient level during a pandemic to maintain public well-being, health, and safety. Included are workers at healthcare facilities who have no direct patient

contact but are important for the operation of those facilities; utility (electricity, gas, water), waste management, mortuary, and some transport workers.

b) Strategy

Treatment within 48 hours of symptom onset.

c) Rationale

Maintaining certain key functions is important to preserve life and decrease societal disruption. Heat, clean water, waste disposal, and corpse management all contribute to public health. Ensuring functional transportation systems also protects health by making it possible for people to access medical care and by transporting food and other essential goods to where they are needed.

d) Population size

Within these broad categories, there are about 2 million workers at healthcare facilities who have no direct patient contact: 730,000 utility workers, 320,000 waste management workers, 62,000 in mortuary services, and 2.3 million in transportation. Not all occupations within these categories would be classified as pandemic societal responders. Estimates are that 35% of this population will develop illness and present within 48 hours of onset regardless of pandemic severity.

e) Unresolved issues

Need for stratification within these groups to identify who fills specific pandemic societal response functions and to assess whether those functions could still operate if a substantial proportion of the workforce became ill during a six-eight week pandemic outbreak within a community. Implementation issues need to be addressed, especially with respect to how people would be identified as falling within this priority group when presenting for treatment and where that treatment would be provided.

9. Other outpatients

a) Definition

Includes people not in one of the earlier priority groups.

b) Strategy

Treatment within 48 hours of illness onset.

c) Rationale

Treatment reduces the risk of complications and mortality, reduces duration of illness and shortens time off work, and decreases viral shedding and transmission. If sufficient antiviral supplies are available, providing treatment to all who are ill achieves equity and will be most acceptable to the public.

d) Population size

There are an estimated 180 million people who are not included in previously targeted groups.

e) Unresolved issues

Consider whether there are any strata that can be defined within this population.

Annex B:

Integration with the Department's Emergency Response Plan:

Preparing for, responding to, and recovering from pandemic influenza will require a strategy with many similarities to other disease outbreaks, be they naturally occurring or resulting from terrorist action. The goals of prevention and control of these outbreaks, and the time-honored public health activities to lessen the impact on morbidity and mortality, namely, education, vaccination, prophylaxis, isolation/quarantine, and the closure of public facilities are common to all, despite the particular disease of concern. In addition, clear, concise communication with the public, within the DHSS, and with other agencies remains a critical component, as does the ability of the involved agencies to achieve collaboration and coordination.

DHSS has Emergency Response Plans in place that have been tried, tested, and exercised for all aspects of response and recovery, including those mentioned above relating to disease surveillance, investigation, and control. Where necessary, details or public information templates unique to pandemic influenza have been added into the existing plan and this annex. This annex outlines the pandemic mechanics from the federal level and lists pandemic specific job duties for DHSS staff and the roles of partnered agencies and organizations.