



2007

Oklahoma Pandemic Influenza Management Plan

Prepared by the OSDH Pandemic Influenza Committee
September 2007



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Oklahoma State Department of Health

August 31, 2007

To Our Public Health Workforce and Partners:

The influenza virus is a formidable foe because of its ability to constantly make small surface changes that allow it to escape recognition by a person's immune system upon a subsequent encounter. More problematic is the potential for a particular strain of influenza virus - animal or human - to undergo a significant mutation, and emerge as a pandemic flu virus threat. Fueled by concerns over the persistence and expanding range of the Asian strain of H5N1 "bird flu," pandemic influenza preparedness planning began in earnest at both the state and federal level in 2005. Since that time, Oklahoma has held a statewide pandemic influenza summit, conducted numerous community-wide preparedness exercises, and implemented new strategies for medical surge capacity and continuity of operations.

I am very pleased to present the 2007 edition of Oklahoma's Pandemic Influenza Management Plan. This document represents the third update of our agency's plan to mitigate the medical and social impacts that may result from a severe pandemic of influenza. All previous sections of the Plan have been revised, and a new section, Workforce Support, has been added to this edition. There are many facets to pandemic influenza planning, and it is important to note that this Plan represents a public health focus in response. Comprehensive planning in many sectors, including our healthcare systems, schools, businesses and government will be key in minimizing the infrastructure disruption that pandemic influenza may cause. I hope that you will find the Oklahoma Pandemic Influenza Management Plan to be a valuable resource in your regional and community planning efforts.

Sincerely,

James M. Crutcher, M.D., M.P.H.
Secretary of Health and
Commissioner of Health

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2007 Oklahoma Pandemic Influenza Management Plan

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2007 Oklahoma Pandemic Influenza Management Plan

Part I: Background

Executive Summary

The Oklahoma Pandemic Influenza Management Plan was first published in July 2005 and continues to be a dynamic and interactive document. Following the release of the National Pandemic Influenza Plan by the U.S. Department of Health and Human Services (HHS) in November 2005, the Oklahoma Pandemic Influenza Committee undertook the challenge of reviewing and augmenting the Oklahoma Pandemic Influenza Management Plan to address areas that needed to be enhanced. The 2006 Oklahoma Pandemic Influenza Management Plan was expanded from six to nine essential elements that are integral in the management of a potential influenza pandemic. These nine essential elements addressed: Command and Management; Surveillance and Laboratory Diagnostics; Delivery of Vaccine; Acquisition and Delivery of Antiviral Medications; Health Systems and Emergency Response; Community Disease Control and Prevention; Infection Prevention and Control; Clinical Guidelines; and Risk Communication. In the 2007 revision of the State's Pandemic Influenza Management Plan, the nine essential elements have been updated and another essential element, Workforce Psychosocial Support, has been added.

The Oklahoma Pandemic Influenza Management Plan and its appendices were developed as guidance for a coordinated statewide, multi-sector response to pandemic influenza. Prevention and preparedness activities to facilitate the public health response and recovery components after a pandemic are also part of the plan guidance.

The Oklahoma Pandemic Influenza Management Plan is public health-focused with the overall goal to minimize serious illness and deaths that may occur with a severe influenza pandemic. However, preparedness planning is also essential for businesses, schools and communities to address other impacts such as economic and social well-being. The Oklahoma State Department of Health (OSDH) in collaboration with numerous state, local and tribal partners continues efforts to promote planning and response activities and to enhance partnerships between state, regional, local and tribal partners.

Introduction

Influenza viruses have threatened the health of animal and human populations for centuries. Influenza viruses have an inherent ability for almost constant genetic change, and for this reason influenza often appears to be one step ahead of science and medical technology. There are two main types of influenza virus mutation: antigenic drift and antigenic shift. **Antigenic drift** is a minor change that occurs frequently and causes the emergence of a new strain within a subtype. Antigenic drifts occur in both type A and B influenza viruses. The composition of the annual influenza vaccine changes from year to

year due to antigenic drift. **Antigenic shift** is a major change caused by genetic recombination that results in the emergence of a novel virus strain that has not previously infected humans. Often, antigenic shift occurs in an animal influenza virus, which then allows the virus to be transmitted between animals and people. Antigenic shift occurs only in influenza type A viruses. Their diversity and propensity for mutation have thwarted human efforts to develop either a highly effective antiviral drug or universal vaccine. A pandemic occurs when a novel strain of influenza type A virus emerges that has the ability to easily pass between and infect humans. If that happens, a worldwide epidemic or pandemic could ensue because humans would have little immunity to the new novel virus.

The animal population, particularly waterfowl or swine, may serve as a reservoir for new influenza viruses. A real world threat for the next potential pandemic may be the avian influenza Asian H5N1 strain. Scientists believe that avian (bird) viruses played a role in the last three documented pandemics. The Asian H5N1 influenza virus has shown the ability to infect multiple species, including long-range migratory birds, pigs, cats and humans. This highly pathogenic avian influenza virus was first recognized in Hong Kong in 1997. Although aggressive measures were used in an attempt to eradicate bird reservoirs of the virus, there have been an increasing number and severity of recurrent poultry outbreaks in Asia, Africa and the Middle East. More troubling is the occurrence of bird-to-human transmission of the virus observed in 12 countries with a sobering case fatality rate of over 50%. *The New England Journal of Medicine* published strong clinical and epidemiological evidence of H5N1 being transmitted from human-to-human in a limited familial case cluster¹. This finding is especially alarming and fuels the global concern that the next influenza pandemic is imminent. While it is impossible to predict whether the H5N1 virus will lead to a pandemic, history suggests that if it does not, another novel influenza virus will emerge at some point in the future and threaten an unprotected human population.

In the past 300 years, there have been 10 documented pandemics of influenza A. The infamous “Spanish flu” of 1918-1919 resulted in 20 to 50 million deaths worldwide in a much less mobile society. The mortality rate during the more recent pandemics (in 1957 and 1968) was relatively low despite the high morbidity. Although supportive medical care and the availability of antibiotic therapy for secondary bacterial infections are factors to explain the “milder blow” of later pandemics, the causative influenza virus strains were less virulent. If a novel influenza strain emerges that is highly virulent (Category 5), the rate of illness and death could rival previous pandemics despite modern healthcare technology. Beyond the human toll, a severe influenza pandemic will create significant social disruption and economic impact. Absenteeism across multiple sectors related to personal illness, illness in family members, fear of contagion or public health measures to limit contact with others could threaten the movement of goods and services, functioning of critical infrastructure and operation of institutions such as schools and universities. Thus, a pandemic may have significant implications for the economy, national security and the basic functioning of society. The Centers for Disease Control and Prevention

¹N Engl J Med 2005 Jan 27; 352(4): 333-340.

(CDC) estimate economic losses associated with future pandemics could total billions of dollars.

If the next pandemic influenza strain mimics the virulence of the 1918 pandemic strain, the World Health Organization (WHO) estimates that there could be between 2 and 7.4 million deaths globally. These statistics seem overwhelming, but there are measures that can be taken now to mitigate the impact of the event. Public health officials at all levels of government continue to develop strategies based on the following assumptions:

1. A pandemic response will require substantial interaction of agencies (beyond health departments) and private industry;
2. The pandemic vaccine and antiviral medications will be in short supply during the early phases and will be allocated and distributed on a priority basis;
3. The initial vaccine supply will be under the control of the federal government with states receiving a formula-based allotment for allocation and distribution;
4. Many geographic areas will be affected simultaneously;
5. Healthcare systems will be temporarily overwhelmed and altered standards of care may need to be employed;
6. Medical supplies, including antibiotics, may be in short supply as secondary complications of influenza are addressed in an increased proportion of patients; and
7. Fear, fatigue, psychological stress and caring for family members may prevent people from going to work, thereby interrupting medical services and community infrastructure.

Revision of this document is an important evolutionary step in Oklahoma's preparation for pandemic influenza. The Oklahoma Pandemic Influenza Management Plan is intended to be a resource document for public health preparedness at the state, regional tribal and local level. It is imperative that public health and all partners (including private entities) work together to define critical roles in the implementation of the state plan before a pandemic strikes.

Pandemic planning and response are categorized and referenced differently by various national and international partners (see Table 1). HHS and CDC describe four periods, WHO delineates six phases and the U.S. Federal Government Response identifies six stages. Presently, the pandemic threat is at the HHS Pandemic Alert Period, WHO Phase 3 and U.S. Response Stage 0.

Table 1.
Pandemic Influenza Phase, Period, Stage Comparison Table

WHO Phases		US Federal Government Response Stages	
HHS INTERPANDEMIC PERIOD			
1	No new influenza 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 disease is considered to be low.	0	New domestic animal outbreak in at-risk country
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.		
HHS PANDEMIC ALERT PERIOD			
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.	0	New domestic animal outbreak in at-risk country
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.	1	Suspected human outbreak overseas
5	Larger cluster(s) but human-to-human spread still localized, suggesting that the virus is becoming increasingly better adapted to human, but may not yet be fully transmissible (substantial pandemic risk).	2	Confirmed human outbreak overseas
HHS PANDEMIC PERIOD			
6	Increased and sustained transmission in the general population.	3	Widespread human outbreaks in multiple locations overseas
		4	First human case in North America
		5	Spread throughout United States
		6	Recovery and preparation for subsequent waves
HHS POST-PANDEMIC PERIOD			
Transmission has been controlled or eliminated, no new cases			

Purpose and Goals of the Plan

1. Reduce morbidity and mortality among Oklahomans during a serious influenza season;
2. Minimize infrastructure disruption and subsequent economic impact caused by an influenza pandemic;
3. Assist and facilitate preparedness in healthcare systems throughout Oklahoma;
4. Provide a comprehensive and dynamic plan that undergoes, at least, annual review and update; and
5. Assist and facilitate appropriate planning and response at the local, regional and state level.

Potential Impact of an Influenza Pandemic on Oklahoma

Many factors must be considered when estimating the potential impact of the next influenza pandemic. Some of these include the virulence of the circulating virus, how rapidly the virus spreads, primary age group affected and the effectiveness of public health intervention and response. Nonetheless, estimates of the health impact can help direct medical response plans and guide public health policy decisions.

During a normal influenza season, 5%-20% of the population becomes ill with the highest rates of influenza-related complications in very young children and the elderly. During severe epidemics, the attack rate may be as high as 30%-50% with a higher proportion of serious illness and deaths occurring in adults less than 65 years old. During the 1918 pandemic, young adults had the highest mortality rates with nearly one-half the influenza-related deaths occurring in those 20-40 years old.

An estimate of the number of deaths and hospitalizations that may occur in Oklahoma during the next influenza pandemic is provided in Tables 2 and 3. The estimates were performed using the Flu Aid 2.0 modeling software available online through the National Vaccine Program office, <http://www.cdc.gov/od/fluid/default.htm>. The numbers were generated using the estimated 2005 US Bureau of Census data (state population of 3,433,496). Based on the model, using a proportion representing 15% to 35% of the state's population clinically affected by influenza, it is projected between 2,234 and 18,131 Oklahomans would require hospitalization and between 808 and 5,470 Oklahomans would die during the first 12 weeks of an influenza pandemic wave. County health departments are encouraged to enter their respective county census data to provide estimates to assist with local planning efforts. It is important to note the model does not allow for the mitigating effects of an effective vaccine or antiviral medications.

**Table 2. Estimated Hospitalizations in Oklahoma from Pandemic Influenza
By Attack Rate and Age Group**

	Attack rates		
	15%	25%	35%
0-18 years of age			
Most likely # of hospitalizations	237	394	552
Minimum	116	194	272
Maximum	993	1,654	2,316
19-64 years of age			
Most likely # of hospitalizations	3,966	6,611	9,255
Minimum	734	1,223	1,712
Maximum	4,330	7,217	10,104
65+ years of age			
Most likely # of hospitalizations	1,936	3,227	4,518
Minimum	1,384	2,307	3,230
Maximum	2,448	4,080	5,711
Total (All ages):			
Most likely # of hospitalizations	6,139	10,232	14,325
Range:	2,234 – 7,771	3,724 – 12,951	5,214 – 18,131

**Table 3. Estimated Deaths During a 12-Week Wave of Pandemic Influenza in Oklahoma
By Attack Rate and Age Group**

	Attack rates		
	15%	25%	35%
0-18 years of age			
Most likely # of deaths	13	22	31
Minimum	8	13	18
Maximum	183	305	427
19-64 years of age			
Most likely # of deaths	671	1,119	1,567
Minimum	96	160	224
Maximum	1,261	2,101	2,941
65+ years of age			
Most likely # of deaths	726	1,210	1,695
Minimum	704	1,174	1,643
Maximum	901	1,501	2,102
Total (All ages):			
Most likely # of deaths	1,410	2,351	3,293
Range:	808 – 2,345	1,347 – 3,907	1,885 – 5,470

Concept of Operations

In the event of an influenza pandemic, the OSDH will be the lead state agency of a unified command structure in the response. State, regional and local organizations will initiate actions as outlined in the Oklahoma Pandemic Influenza Management Plan and the Catastrophic Health Emergency Plan.

The Oklahoma Pandemic Influenza Management Plan contains ten essential elements:

1. Command and Management
2. Surveillance and Laboratory Diagnostics
3. Delivery of Vaccine
4. Acquisition and Delivery of Antiviral Medications
5. Health Systems and Emergency Response
6. Community Disease Control and Prevention
7. Infection Prevention and Control
8. Clinical Guidelines
9. Risk Communication
10. Workforce Psychosocial Support

Roles of the Oklahoma State Department of Health (OSDH)

1. The OSDH is responsible for the development, regular review and implementation of the Oklahoma Pandemic Influenza Management Plan by an internal workgroup with established timelines.
2. The OSDH Public Health Laboratory is integral in surveillance activities by providing viral isolation, antigen detection and strain identification of influenza viruses.
3. The Oklahoma Commissioner of Health and State Health Officer has the primary authority for direction and supervision of the implementation of the Plan components, namely vaccine delivery and antiviral medication dispensing.
4. The OSDH Terrorism Preparedness and Response Service (TPRS), along with OSDH Community Health Services, will collaborate with partners and

stakeholders to develop, gain approval of and distribute guidance related to local and state responsibilities.

5. The OSDH TPRS along with Community Health Services will ensure the Plan includes a grid of operational responsibilities of state, local, tribal and regional jurisdictions for each essential element.

Roles of the County Health Departments

County health departments are responsible for planning and orchestrating the local response to an influenza pandemic with direction from the OSDH Central Office. This includes local and community integration with response partners, including but not limited to tribal facilities, law enforcement, emergency management, educational institutions, healthcare facilities and government officials. County health departments, through existing or enhanced surveillance, may be the first to detect influenza activity in their community. County health department responsibilities include:

1. Promote routine influenza and pneumococcal vaccination to designated high-risk groups.
2. Meet with local key partners, including tribal entities, and familiarize them with the Oklahoma Pandemic Influenza Management Plan and their local county plan.
3. Liaison with local and tribal responders (e.g., emergency services, hospitals, schools and mortuary services) in advance of a pandemic to facilitate a coordinated response.
4. Develop a plan, in collaboration with key partners, that addresses community disease prevention and control including possible closing and re-opening of schools, businesses and public events during a pandemic influenza event.
5. Facilitate the development of local contingency/continuity plans for the provision of those confined at home, medical care of sick people at home, maintenance of essential services, economic stability and employee well-being and safety within the community.
6. Ensure local, tribal and hospital emergency plans are implemented during an influenza pandemic.
7. Assist with disseminating educational materials targeted toward the public regarding an influenza pandemic response.
8. Facilitate liaisons with local county mental health providers to ensure the mental health needs of the community are addressed.

Roles of the Federal Government

1. Coordinate national and international surveillance.
2. Conduct epidemiological investigations in the U.S. and globally.
3. Develop and direct the use of diagnostic laboratory tests and reagents.
4. Develop reference strains and reagents for vaccines.
5. Evaluate and license vaccines.
6. Determine population at highest risk and strategies for vaccination and antiviral medication use.
7. Assess and advise on measures to decrease transmission (such as travel restrictions, isolation and quarantine).
8. Deploy federally purchased vaccine.
9. Deploy antiviral medications in the Strategic National Stockpile (SNS).
10. Evaluate the efficacy of response measures.
11. Deploy federal personnel, if requested (i.e., Commissioned Corps Readiness Force, Epidemic Intelligence Service Officers, Indian Health Services).
12. Develop and distribute medical and public health communications.

Pandemic Influenza Management Plan

Essential Element #1

Command and Management

This element details the command and management of the emergency response infrastructure that is required throughout the delineated phases of an influenza pandemic. The Oklahoma State Department of Health (OSDH) will lead the state response to an influenza pandemic through the existing response infrastructure coordinated through Oklahoma's proven State Emergency Operations Plan, Emergency Support Function (ESF) #8: Health and Medical. The State Emergency Operations Plan is parallel and integrated with the National Response Plan's ESF #8: Public Health and Medical Services. The county health departments have similarly developed and implemented a structured parallel system of pandemic influenza preparedness for their local jurisdictions. The Commissioner of Health will have primary authority for the implementation of the pandemic response activities. Also in this plan, OSDH will outline procedures for response to environmental, health and medical needs of the State of Oklahoma in the event of an influenza pandemic.

Figure 1.1, located at the end of this element, illustrates the grid of operational responsibilities for federal, state, local, tribal and regional jurisdictions during an influenza pandemic.

A. INTERPANDEMIC PERIOD

1. The OSDH will ensure that the Oklahoma Pandemic Influenza Management Plan is developed and integrated into the Oklahoma Catastrophic Health Emergency Plan and the State Emergency Operations Plan.
2. The OSDH Terrorism Preparedness and Response Service (TPRS) will collaborate with partners to establish a committee charged to develop an OSDH continuity of operations plan and ensure continuity with other response plans (i.e., Oklahoma Catastrophic Emergency Health Plan, Oklahoma State Emergency Operations Plan, Strategic National Stockpile (SNS) Plan, county emergency operations plans and local Mass Immunizations Prophylaxis Strategy (MIPS) Plans).
3. The OSDH TPRS will ensure collaboration with key state, federal, local and tribal partners to identify crucial gaps in the response infrastructure and will seek legislative actions necessary to correct obstacles that could hinder an effective response. Key partners include, but are not limited to:
 - a. County Health Departments,
 - b. Medical Emergency Response Centers,

- c. Metropolitan and Regional Medical Response Systems,
 - d. Oklahoma Attorney General's Office,
 - e. Oklahoma Department of Agriculture, Food and Forestry,
 - f. Oklahoma Department of Mental Health and Substance Abuse Services,
 - g. Oklahoma Military Department,
 - h. Oklahoma Department of Public Safety,
 - i. Oklahoma Department of Transportation,
 - j. Oklahoma Medical Reserve Corps,
 - k. Oklahoma Office of Homeland Security,
 - l. Oklahoma State Bureau of Investigation,
 - m. Oklahoma City Area Inter-Tribal Health Board,
 - n. Hospitals, and
 - o. Emergency Medical Service Providers.
4. The OSDH TPRS will coordinate planning activities with state, local, tribal and federal agencies and non-governmental organizations as well as private industry partners.
 5. The OSDH TPRS will collaborate with law enforcement to ensure maintenance of a key contact list, which includes contact information for essential personnel.
 6. The OSDH Public Health Veterinarian will collaborate with agriculture partners to ensure public health concerns are integrated into animal health plans including surveillance and disease outbreak response.
 7. The OSDH TPRS will investigate the necessity of agreements with neighboring jurisdictions (i.e., cities and counties) and will develop and distribute templates, if necessary.
 8. The OSDH TPRS will collaborate with the OSDH Office of General Counsel to ensure that legal authorities that may need to be exercised in a pandemic response (case identification, isolation, quarantine, movement restriction, healthcare services, emergency care and mutual aid) are clear to all stakeholders.

9. The OSDH will maintain standard operations (including but not limited to monitoring hospital capacity data, testing communications systems to ensure interoperability and testing call-up mechanisms for public health responders) in the OSDH Situation Room (health emergency operations center).
10. The OSDH TPRS will continue to train OSDH staff and key partners in the Incident Command System (ICS) according to the National Incident Management System (NIMS).
11. The OSDH TPRS will maintain updated ICS charts that pre-identify command and general staff positions (see Appendix A).
12. The OSDH will conduct and participate in exercises to test jurisdiction-specific pandemic influenza plans. These exercises will include OSDH and other state agencies, region-specific and discipline-specific personnel to ensure integration and interoperability during actual incident operations.
13. The OSDH TPRS will collaborate with the OSDH Child Guidance Service and the Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS) to ensure that mass medication exercises include and test the mental health services component.
14. The OSDH TPRS will review Oklahoma's SNS and MIPS plans to ensure that procedures for requesting and distributing medical assets are clearly delineated. Changes will be made if necessary. The OSDH TPRS will reinforce the procedures in the monthly newsletter that is distributed to county health department administrators.
15. The OSDH will convene a committee to review and modify the Oklahoma Pandemic Influenza Management Plan on an annual basis and will ensure that the plan is flexible, scalable and able to address various levels and magnitudes of outbreak severity.
16. The OSDH will ensure its Situation Room maintains readiness (i.e., pre-identified command and general staff, call-down systems and communications interoperability) to respond to the potential threat of a novel virus.
17. The OSDH will work with partners (i.e., public safety, public works, healthcare systems, private organizations and stakeholder groups) to pre-determine and prioritize essential employees to receive antiviral medication and/or vaccine in a pandemic event.
18. The OSDH will collaborate with law enforcement to determine training needs and ensure that first responder medication plans are clearly delineated.

B. PANDEMIC ALERT PERIOD

1. The OSDH will activate the Situation Room. The Commissioner of Health will formally declare and designate in writing a Public Health Incident Commander. The Public Health Incident Commander and/or designated general staff will ensure the Situation Room is fully activated.
2. The OSDH will notify the Oklahoma Department of Emergency Management, through the OSDH Liaison Officer, of the potential pandemic threat and organize regularly scheduled planning meetings to address the threat.
3. The Oklahoma Department of Emergency Management will notify all necessary state government officials of the potential need for additional monetary resources to adequately respond to the pandemic influenza crisis.
4. The OSDH will request and review priority lists of identified individuals from key agencies and organizations to receive antiviral medications and vaccine.
5. The OSDH will review and consider addressing issues surrounding early school closures, social distancing and travel restrictions to reduce the spread of disease in a pandemic influenza event.
6. The OSDH will send an email alert to all OSDH employees.

C. PANDEMIC PERIOD

1. The OSDH will assign an ESF #8 Liaison Officer to the State Emergency Operation Center who will coordinate resources and requests in concert with the OSDH Situation Room.
2. The OSDH TPRS and the Trauma Division will gather data and other pertinent information from hospital capacity reports every 12 hours and report status to key organizations or persons within local, regional, tribal and state governments.
3. The OSDH will coordinate activities such as plan revision, health system and emergency response plan augmentation, and issuance of recommendations with other state, local, tribal and federal partners.
4. The OSDH will activate and implement the Oklahoma SNS Plan and MIPS plans for distribution of antiviral drugs and vaccine when available.
5. The OSDH will collaborate with partners to activate Multi-Agency Coordination Centers and emergency operations centers (Metropolitan Medical Response System, Regional Medical Response Systems, county health departments and hospitals) as appropriate. The Oklahoma Department of Emergency Management will coordinate activation of local emergency management agencies, as necessary.

6. The OSDH will advise the Office of the Chief Medical Examiner and the Oklahoma Funeral Directors Association to prepare for increased deaths by activating Mass Fatality Plans as directed by Oklahoma Catastrophic Health Emergency Plan and the State Emergency Operations Plan, ESF #8.
7. The OSDH TPRS will assist the county health departments by activating Mass Fatality Plans as directed by Oklahoma's Catastrophic Health Emergency Plan and the State Emergency Operations Plan, ESF #8.
8. The OSDH will collaborate with law enforcement to determine training needs and ensure that first responder medication plans are clearly delineated.
9. The OSDH Child Guidance Service will collaborate with the ODMHSAS to develop and issue guidance to ensure that psychosocial support is available for those affected and those responding.
10. The OSDH will assess, evaluate and modify the Oklahoma Pandemic Influenza Management Plan as indicated by epidemiologic findings and other projections of future influenza transmission.

D. POSTPANDEMIC PERIOD

1. The Oklahoma Department of Emergency Management will assess the ability of state, tribal and local partners to resume normal service and recommend appropriate actions.
2. The OSDH Situation Room will cease emergency operations upon written declaration by the Public Health Incident Commander.
3. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
4. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.
5. The OSDH will continue to coordinate planning activities with state, local, tribal and federal agencies and non-governmental organizations.

Command and Management

Figure 1.1 Grid of Operational Responsibilities

Command and Management	WHO PANDEMIC PHASES					
	I	II	III	IV	V	VI
Collaboration with ESF partners	L - F	L - F	L - F	L - F	L - F	L - F
Training on Oklahoma Pandemic Management Plan	L, IA,T,S	L, IA,T,S	L, IA,T,S			
Continuity of government/operations training	L - F	L - F	L - F			
NIMS & ICS training	L, IA,T,S	L, IA,T,S	L, IA,T,S			
Development of template for ESF partners	L, IA,T,S,IE	L, IA,T,S,IE				
Training on legal issues	L, IA,T,S	L, IA,T,S				
Assess interoperability of communication plans	L - F	L - F	L - F			
Pre-identify ICS structure	L, IA,T,S	L, IA,T,S	L, IA,T,S			
Continue ongoing exercises	L, IA,T,S	L, IA,T,S	L, IA,T,S			
Assess/reassess mental health component	L, IA,T,S	L, IA,T,S	L, IA,T,S			
Assess and review SNS Plan	L - F	L - F	L - F	L - F		
Ensure interoperability of OSDH Situation Room	L - F	L - F	L - F	L-F	L-F	L-F
Activation of Situation Room				L, IA,T,S,IE	L, IA,T,S,IE	L, IA,T,S,IE
OSDH ESF-8 to OEM				S		
OEM activated				S		
Activation of public health response				L - F	L - F	L - F
Coordination of resources for public health and medical systems				L - F	L - F	L - F
OSDH ensures mitigation and AAR follows Homeland Security Exercise & Evaluation Program (HSEEP) guidelines	L, IA,T,S	L, IA,T,S	L, IA,T,S			
Legend: F=Federal IE= Interstate (between states) S= State T=Tribal entities IA= Intrastate (within the same state) L=Local counties L-F = All						

Pandemic Influenza Management Plan Essential Element #2 Surveillance and Laboratory Diagnostics

This element describes surveillance and laboratory diagnostic infrastructure and actions that are required throughout the delineated phases of an influenza pandemic. The Oklahoma State Department of Health (OSDH) Acute Disease Service in cooperation with the Public Health Laboratory assumes primary responsibility for conducting influenza surveillance. The Oklahoma influenza surveillance system routinely receives information and specimens from sentinel physicians and laboratories. The Public Health Laboratory, a member of the Laboratory Response Network, provides viral diagnostic testing and augments with new capabilities as available. The Acute Disease Service epidemiologists provide weekly analysis and reports of surveillance data and investigate case clusters of respiratory disease. The Acute Disease Service and the Public Health Laboratory will continue ongoing efforts to integrate animal and public health surveillance systems by enhancing capabilities to receive avian influenza test results from the Oklahoma Animal Disease Diagnostic Laboratory.

Figure 2.1, located at the end of this element, illustrates the grid of operational responsibilities for federal, state, local, tribal and regional jurisdictions during an influenza pandemic.

A. INTERPANDEMIC PERIOD

1. The OSDH Public Health Laboratory will continue to conduct virologic surveillance to include the following capabilities:
 - a. Maintain membership in the Laboratory Response Network to ensure availability and competence to perform influenza reference laboratory testing;
 - b. Receive specimens from sentinel physicians, sentinel laboratories, the Office of the Chief Medical Examiner and various sources during a respiratory disease outbreak investigation for virus identification, typing and sub-typing;
 - c. Maintain capabilities to perform Reverse Transcriptase Polymerase Chain Reaction (RT-PCR) testing on submitted clinical specimens before they are set up for viral culture and maintain appropriate reagents for year-round testing. The Public Health Laboratory as a member of the Laboratory Response Network has reagents to identify H5N1 Asian lineage 1 and 2 avian influenza viruses by RT-PCR testing;
 - d. Ensure surge capacity and maintain 3 cell lines and 25 cultures of each cell line weekly for viral isolation and identification. The OSDH Public Health Laboratory will maintain the capability to test 200 specimens by RT-PCR.

If more specimens are received, the OSDH Public Health Laboratory will order more culture or testing supplies available the following day;

- e. Provide supplies for specimen collection, transport, shipping and testing (free of charge) based on clinical and epidemiologic needs throughout the state;
 - f. Purchase additional equipment and testing supplies to support year-round influenza surveillance as described further in this plan;
 - g. Ensure compliance with annual proficiency testing according to operational procedures;
 - h. Ensure adherence to bio-safety containment and bio-monitoring protocols. Any illness that may occur in laboratory personnel will be promptly reported to the OSDH Epidemiologist-on-Call and investigated for the potential of laboratory-acquired transmission;
 - i. Participate in the World Health Organization (WHO) and U.S. National Respiratory and Enteric Virus Surveillance System by submitting viral isolates to the Centers for Disease Control and Prevention (CDC) for comparative antigenic and genetic analysis; and
 - j. Develop protocols to inform frontline clinicians and referral laboratories on safe specimen collection and testing.
2. The OSDH Acute Disease Service will continue to include a network of geographically distributed sentinel laboratories, which voluntarily report the proportions and types of positive influenza tests performed at their laboratory each week, to the Oklahoma influenza surveillance system.
 3. The OSDH Acute Disease Service will conduct disease-based surveillance to include the following:
 - a. Receive reports from sentinel physicians regarding the proportion of patients presenting with influenza-like illness by age group each week. The ratio of sentinel physicians to total Oklahoma population (currently 1:98,590) will continue to surpass the CDC recommended ratio of 1:250,000 total population. Influenza-like illness data will be electronically submitted to the data repository at the CDC, as part of the U.S. Sentinel Physicians Surveillance Network. Sentinel physicians will also obtain and submit a representative sample of respiratory specimens to the Public Health Laboratory for virologic testing;
 - b. Increase the number of sentinel physicians in the Oklahoma Influenza Surveillance Network to include members of the Oklahoma Physicians

Research Network, who are healthcare providers geographically distributed across the state. The OSDH Acute Disease Service will provide viral transport media and rapid influenza tests to these sentinel physicians to facilitate and expedite submission of respiratory specimens to the OSDH Public Health Laboratory for RT-PCR, culture and identification;

- c. Monitor respiratory disease outbreaks in collaboration with county health departments, local healthcare providers, tribal facilities and the OSDH Public Health Laboratory. Personnel in each county health department are trained to detect and investigate respiratory illness outbreaks in a variety of settings (schools, daycares, nursing homes, etc.);
 - d. Compile and analyze virologic and disease-based surveillance data weekly. Quantitatively and qualitatively assess the data to determine influenza activity in Oklahoma. The influenza activity level is electronically provided weekly to the CDC;
 - e. Collaborate with public health partners to collect and evaluate data from volume-based systems including the Tulsa Area Syndromic Surveillance System (TASSS), Oklahoma City County Health Alert System (OCHAS), First Watch, EMSsystem® and Medusa to monitor the seasonal impact of influenza;
 - f. Collaborate with the Tulsa City County Health Department (TCCHD) and the Oklahoma City County Health Department (OCCHD) to develop new methods to track influenza-related hospitalizations through existing syndromic surveillance system networks;
 - g. Analyze and prepare weekly reports of influenza surveillance data and distribute the reports to laboratories, county health departments, tribal facilities, healthcare providers, hospital infection control practitioners and the general public. These weekly data reports are accessible on the Oklahoma Influenza Surveillance website. Notifications of especially high influenza activity or unusual situations are reported to physicians, infection control practitioners, tribal facilities and county health department personnel through the Oklahoma Health Alert Network (OK-HAN) system; and
 - h. Share information with epidemiologists and technologists in other states regarding the detection and circulation of influenza viruses in Oklahoma using the CDC Epi-X Exchange and other communications methods.
4. The OSDH Public Health Veterinarian will perform the following activities:
- a. Monitor occurrences of outbreaks of highly pathogenic avian influenza in the state and region. The progression of these outbreaks and concurrent monitoring for potential zoonotic transmission to poultry workers will be

coordinated with the State Veterinarian at the Oklahoma Department of Agriculture, Food and Forestry and with the Regional Veterinarian in charge at the United States Department of Agriculture/Animal Plant Health Inspection Service;

- b. Report any mortality clusters in wild birds, particularly waterfowl, to the Oklahoma Department of Wildlife Conservation for potential investigation;
- c. Continue working with federal and state agencies to implement wild bird testing for highly pathogenic avian influenza viruses and to develop an integrated communication and response plan; and
- d. Organize and facilitate Avian Influenza Rapid Response Trainings and Exercises in collaboration with agriculture, wildlife and poultry industry sectors.

B. PANDEMIC ALERT PERIOD

1. The OSDH Acute Disease Service and Public Health Laboratory will conduct the following activities as the threat for sustained human-to-human transmission of a novel influenza virus is raised:
 - a. Continue to conduct year-round influenza surveillance activities in Oklahoma;
 - b. Monitor reports regarding virologic, epidemiologic and clinical findings associated with the novel strain overseas;
 - c. Provide situation updates to healthcare providers as needed through the OK-HAN system and Epidemiology Bulletins;
 - d. Enhance disease-based surveillance by requesting healthcare providers and laboratories submit respiratory specimens to the OSDH Public Health Laboratory from suspect patients. Suspect patients include those presenting with influenza-like illness and having recently traveled to a country or region where the novel strain of influenza has been identified or presented with unusually severe symptoms regardless of their travel history;
 - e. Enhance laboratory surveillance by obtaining the appropriate reagents from the CDC to detect and identify the novel strain. If an atypical influenza virus is isolated or typed at the Public Health Laboratory, the results will be rapidly reported to key OSDH personnel via phone (through updated call trees) and posted on the Laboratory Information Tracking System. The State Epidemiologist and State Public Health Laboratory Director will coordinate laboratory confirmation and any necessary epidemiologic investigations with the CDC;

- f. Conduct routine influenza-like illness surveillance among laboratory personnel;
- g. Ensure diagnostic testing proficiency and adherence to bio-safety containment and bio-monitoring protocols as part of the standard Public Health Laboratory procedures;
- h. Develop protocols to inform frontline clinicians and referral laboratories on safe specimen collection and testing. Development of a febrile respiratory illness in any laboratory personnel will be reported to the Acute Disease Service for epidemiologic investigation; and
- i. Review existing outbreak protocols and modify as appropriate to include the applicability and use of a Public Health Information Network-compliant outbreak management system.

C. PANDEMIC PERIOD

1. The OSDH will assess current needs and modify routine activities to address response priorities. It is expected that some routine activities will need to be suspended to accommodate priority needs for information sharing due to the diminished resources previously available at hospitals and laboratories for reporting. It is also anticipated that the OSDH may need to recruit epidemiologic and clerical support from other programmatic areas for the pandemic response.
2. The OSDH Acute Disease Service will investigate the initial case(s) of disease due to a novel influenza virus in collaboration with county health department personnel, if, and when, the following are met:
 - a. Notification of a suspect case of novel influenza illness meeting the appropriate travel, clinical and/or epidemiology criteria; or
 - b. Identification of a novel influenza virus by the OSDH Public Health Laboratory.
3. The OSDH Public Health Laboratory will provide swabs and viral transport media for specimen collection and facilitate courier transport of specimens.
4. The OSDH Public Health Laboratory will perform screening by Polymerase Chain Reaction (PCR) testing and the specimen will also be set up for viral culture and isolation. If the screening PCR test is positive for a novel influenza hemagglutinin type, the OSDH Acute Disease Service will notify the CDC at the CDC Emergency Response Hotline by calling (770) 488-7100 and will complete a CDC case screening and reporting form.

5. The OSDH Acute Disease Service will work in conjunction with other public health partners to assist in identifying new cases, to test contacts if necessary and to make recommendations for treatment or prophylaxis. The Acute Disease Service epidemiologists will conduct contact tracing (when numbers of cases are relatively small) and, under further guidance from the CDC, may recommend 10-day home confinement and daily self-monitoring for fever for all close contacts to the suspect case. Public health nurses will assist with active or passive monitoring of contacts by phone to determine if there is a change in their health status. Providing the suspect case does not require hospitalization, orders for home isolation for 10 days after symptom onset will be implemented by county health department personnel under the direction of the OSDH Office of the State Epidemiologist and Commissioner of Health. Contact tracing and quarantine methods are further addressed in the Community Disease Control and Prevention section.
6. The OSDH Acute Disease Service will work with county health department personnel and the CDC to make appropriate recommendations for antiviral treatment or prophylaxis to prevent infection in public health and healthcare workers, reduce severity of illness and attempt to contain transmission from the first identified case(s).
7. The OSDH Public Health Veterinarian will rapidly notify the Oklahoma Department of Agriculture, Food and Forestry and/or the Oklahoma Department of Wildlife Conservation if the initial case(s) involved contact with poultry or flocks of other avian species, regarding the location of birds suspected to be the source of exposure. The State Public Health Veterinarian, Acute Disease Service epidemiologists and county health department Communicable Disease Nurses will assist with protecting workers involved with poultry depopulation by advising on use of antiviral prophylaxis and appropriate personal protective equipment, assisting in training employers to fit test respirators and educating workers on signs and symptoms of influenza illness.
8. The OSDH Acute Disease Service will expand surveillance of hospitalized and fatal cases and assess other sequelae or conditions through increased communications with hospital infection control practitioners and the Office of the Chief Medical Examiner.
9. The OSDH Commissioner of Health, under existing state laws, may make influenza a reportable condition in Oklahoma by emergency declaration. This type of declaration could be used to require healthcare providers to report influenza-associated deaths and hospitalizations in the event of a serious pandemic thereby allowing the OSDH Acute Disease Service to conduct active surveillance.
10. The OSDH Acute Disease Service will work closely with the Office of the Chief Medical Examiner to augment the existing infectious disease mortality

surveillance system to monitor influenza-related deaths. Contingent on caseload and resource prioritization, the Office of the Chief Medical Examiner will continue to collect specimens for viral culture, isolation and identification at the OSDH Public Health Laboratory.

11. The OSDH Acute Disease Service will obtain death certificate information on persons who died of suspected influenza-related causes.
12. The OSDH will explore the use of syndromic surveillance systems such as the Tulsa Area Syndromic Surveillance System (TASSS) and Oklahoma City County Health Alert System (OCHAS) to collect timely data on hospitalizations and serious complications attributable to the pandemic and help guide the allocation of community resources.
13. The OSDH Public Health Laboratory will prioritize specimens for testing according to the epidemiologic and medical information provided because the demand for viral culture, isolation and identification will greatly increase and likely overwhelm Public Health Laboratory technologists during the pandemic.
14. The OSDH Acute Disease Service will facilitate rapid reporting of surveillance data relevant for use in determining prioritization for vaccine and/or antiviral medication distribution to include at least the following steps:
 - a. Intensify surveillance to characterize age groups most affected by the pandemic strain;
 - b. Collect drug resistance data to characterize efficacy of various antiviral medications;
 - c. Devise a sentinel surveillance program to estimate vaccine efficacy/failure rates;
 - d. Focus laboratory surveillance on detection of possible antigenic changes in the original pandemic strain;
 - e. Monitor surveillance reports from the WHO and the CDC on national and international morbidity and mortality rates;
 - f. Disseminate frequent updates through the OK-HAN system to enhance communication and notification of collaborating partners about surveillance, diagnostics and infection prevention and control procedures; and
 - g. Facilitate collaboration between the OSDH and the CDC regarding the need for any special studies that could be conducted without further compromise of existing limited resources.

D. POSTPANDEMIC PERIOD

1. The OSDH Acute Disease Service will evaluate the strengths and weaknesses of disease-based and virologic surveillance efforts implemented during each phase of the pandemic.
2. The OSDH Acute Disease Service will perform a detailed retrospective characterization of the pandemic in Oklahoma evaluating the overall morbidity and mortality.
3. The OSDH Acute Disease Service will resume influenza surveillance activities as described in the Federal Response Stages 0 through 2 implementing any necessary modifications.
4. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
5. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.

Surveillance and Laboratory Diagnosis

Figure 2.1 Grid of Operational Responsibilities

Surveillance and Laboratory Diagnostics	WHO PANDEMIC PHASES					
	I	II	III	IV	V	VI
Maintain membership in LRN to test for novel influenza viruses	S, F	S, F	S, F	S, F	S, F	S, F
Ensure laboratory surge capacity			S, F	S, F	S, F	S, F
Submit influenza isolates to CDC for antigenic sub-typing	S, F	S, F	S, F	S, F	S, F	S, F
Conduct influenza surveillance year round			S, T, IA, L	S, T, IA, L	S, T, IA, L	S, T, IA, L
Receive specimens from physicians, hospitals and labs	S, IA, L	S, IA, L	S, IA, L	S, IA, L	S, IA, L	S, IA, L
Analyze and report influenza surveillance findings to partners	S, F	S, F	S, F	S, F	S, F	S, F
Evaluate and share data from OCHAS and TASSS	L	L	L	L	L	L
Identify and investigate respiratory disease outbreaks	L, T, S	L, T, S	L, T, S	L, T, S	L, T, S	L, T, S
Distribute algorithm for testing patients with atypical flu			F, S, T, L	F, S, T, L	F, S, T, L	
Monitor highly pathogenic avian influenza (HPAI) surveillance activities In poultry/wild birds			S, F	S, F	S, F	
Exercise interagency response to HPAI outbreak			S, F	S, F		
Post relevant surveillance findings on Epi-X	IE, F	IE, F	IE, F	IE, F	IE, F	IE, F
Monitor laboratory personnel for influenza-like illness	S	S	S	S	S	S
Adhere to bio-safety containment protocols	S, T, L	S, T, L	S, T, L	S, T, L	S, T, L	S, T, L
Enhance surveillance to identify influenza-related mortality			F, S	F, S	F, S	F, S
Enhance surveillance to determine best use of antiviral/vaccine					S, IE, F	S, IE, F
Share OK-HAN alert or advisories with healthcare providers	S, L	S, L	S, L	S, L	S, L	S, L
Legend: F= Federal IE= Interstate (between states) S= State T= Tribal entities IA= Intrastate (within the same state) L= Local counties						

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Pandemic Influenza Management Plan

Essential Element #3

Delivery of Vaccine

This element details the mechanisms for delivery of vaccine, which is a critical component of the required emergency response infrastructure throughout the delineated phases of an influenza pandemic. The vaccine to be used for a pandemic influenza response may only be available after several months from the onset of the pandemic. Once vaccine is available, deliveries of the vaccine will be made directly to county health departments or to Mass Immunization Prophylaxis Strategy (MIPS) sites, as appropriate, to support local jurisdictions.

Figure 3.1, located at the end of this element, illustrates the grid of operational responsibilities for federal, state, local, tribal and regional jurisdictions during an influenza pandemic.

A. INTERPANDEMIC PERIOD

1. The Oklahoma State Department of Health (OSDH), in collaboration with county health departments and private providers, will maximize influenza vaccination rates in all high-risk populations including those for whom the rate of vaccination is low, i.e., minorities, healthcare workers and persons with chronic disease.
2. The OSDH, in collaboration with county health departments and private providers, will maximize pneumococcal vaccination among high-risk populations.
3. The OSDH Terrorism Preparedness and Response Service (TPRS) will ensure the Strategic National Stockpile (SNS) Plan and MIPS template and plans will be reviewed and revised to ensure consistency with existing response measures. County health departments are responsible for maintaining MIPS plans that integrate with local emergency operations plans (where applicable).
4. The OSDH will continue to improve SNS plans related to vaccine distribution and ensure that exercises test this component.
5. The OSDH Immunization Service will ensure vaccine storage and handling, equipment and supplies are available for mass vaccination. OSDH will have a pre-staged operational refrigeration system in place with redundant electrical backup, security and electronic temperature monitoring devices fully capable for the receipt, storage and distribution of pandemic influenza vaccine.
6. The OSDH TPRS will investigate the need for additional agreements; however, mass medication plans exist for the entire state.

7. The OSDH Office of Communications will modify as needed and share pre-developed communication materials contained in the pandemic influenza shelf kit.
8. The OSDH Immunization Service will ensure the Oklahoma State Immunization Information System is configured to collect relevant demographic, vaccine and clinical data for inventory control and tracking. The system should also be able to collect information on possible adverse events.
9. The OSDH Immunization Service will use the Centers for Disease Control and Prevention (CDC) Vaccine Information Statement detailing the risks and benefits of the vaccine as part of an ongoing interpandemic influenza program.
10. The OSDH will continue to collaborate with community partners in exercising mass immunization prophylaxis strategy sites.

B. PANDEMIC ALERT PERIOD

1. The OSDH and local communities will identify essential personnel who serve the public in occupations that are critical to maintaining community services and infrastructure, but are not traditionally considered a target population for influenza immunization (see Appendix B).
2. The OSDH will assemble a Pandemic Influenza Team (Chief of Operations for Disease and Prevention Services, State Epidemiologist, OSDH Pharmacist, Chief of Immunization Service, Chief of Terrorism Preparedness and Response Service, SNS Coordinator, Hospital and Public Health Preparedness Division Director, Oklahoma Hospital Association Director, Oklahoma Pharmacy Association Director, an Oklahoma physician specializing in the practice of infectious diseases, a medical ethicist, a Metropolitan Medical Response System (MMRS) representative, an Oklahoma City Inter-tribal Health Board member, an Indian Health Service representative, an Oklahoma City-County Health Department designee, a Tulsa City-County Health Department designee and the OSDH Chief of Nursing Services). The Pandemic Influenza Team will submit investigative findings and written recommendations to the State Commissioner of Health for consideration and final approval.
3. The OSDH, in collaboration with CDC, will identify the timing of state vaccine supply potential and communicate this information to the Pandemic Influenza Team.
4. The OSDH Pandemic Influenza Team will modify the vaccination target population (see Appendix B) according to national guidance and state surveillance information.
5. The OSDH will prioritize groups for vaccination in severe vaccine shortages, moderate vaccine shortages and no vaccine shortages.

6. The OSDH will review and update protocols for receiving, storage and staging vaccine distribution for the OSDH distribution center and local distribution sites.
7. The OSDH will ensure contingency plans have been considered for emergency distribution of unlicensed vaccine using investigational new drug or Emergency Use Authorization (EUA) provisions, including pre-staging Investigational New Drug (IND) forms at MIPS sites, implementing strict inventory control and record keeping, completing signed consent forms and monitoring adverse events.
8. The OSDH Immunization Service will coordinate the development of materials for “Just-In-Time Training” and refresher courses on vaccine delivery protocols and vaccine administration techniques, including proper child restraint practices, for persons who do not normally administer vaccines.
9. The OSDH Office of Communications will provide updated information to the general public regarding Oklahoma’s anticipated vaccine supply.
10. The OSDH will continue to work with county health departments and private providers to maximize pneumococcal vaccination among high-risk populations.
11. The OSDH will coordinate vaccine distribution plans with other state agencies.

C. PANDEMIC PERIOD

1. The OSDH will institute an appropriate Incident Command System (ICS) to review recommendations developed in the Pandemic Alert Period for vaccine receipt, storage, staging, security, distribution, administration and accountability (see Appendix B). As the pandemic progresses, the ICS will expand accordingly, if the need occurs that warrants this action.
2. The OSDH will conduct the following actions when vaccine becomes available:
 - a. Activate MIPS plans and notify clinics of the expected vaccine distribution timetable;
 - b. Review, update and implement plans (through county health departments) according to vaccine availability and timetable;
 - c. Provide updated copies of Vaccine Information Statements and the Influenza Vaccine Administration form;
 - d. Ensure vaccine storage sites have 24-hour security as described in the Local Emergency Operations Plan to be coordinated through the Oklahoma Department of Emergency Management as needed. The

vaccine will be stored in locked rooms in refrigerators with temperature alarms that activate local and remote alarms;

- e. Ensure vaccine transport includes available security as described in local MIPS plans;
- f. Ensure communication of the availability of vaccine to target groups and the general population (see Element #9: Risk Communication); and
- g. Ensure that the psychological needs of individuals are addressed to minimize the fear and anxiety related to not being vaccinated.

3. The OSDH Immunization Service will perform the following activities:

- a. Provide a daily inventory of influenza vaccine quantities on hand and administered;
- b. Provide quality assurance oversight of ongoing receipt, storage, security, distribution and administration of pandemic vaccines;
- c. Conduct recalls of individuals who need second immunizations as may be recommended by the Advisory Committee on Immunization Practices or vaccine manufacturer;
- d. Ensure availability of staff or trained volunteers at county health departments to enter influenza data into the Oklahoma State Immunization Information System (OSIIS) within 24 hours to facilitate vaccine inventory control;
- e. Ensure sites that are administering influenza vaccine report a daily hand count inventory of vaccine and supplies;
- f. Provide follow-up and investigate pandemic influenza vaccine adverse events;
- g. Provide local partners and MIPS sites with guidance on meeting IND and EUA requirements (as applicable); and
- h. Provide materials for “Just-In-time Training” and refresher courses on vaccine delivery protocols and vaccine administration techniques for persons who do not normally administer vaccines, including proper child restraint practices.

D. POSTPANDEMIC PERIOD

1. The OSDH, in collaboration with county health departments, will assess coverage of different populations to determine who received the vaccine and who still needs to be targeted for receipt of vaccinations.
2. The OSDH Immunization Service, in anticipation of a possible second pandemic wave, will continue statewide surveillance and vaccination programs to ensure every eligible Oklahoman is vaccinated.
3. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
4. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.

Delivery of Vaccine

Figure 3.1 Grid of Operational Responsibilities

Delivery of Vaccine	WHO PANDEMIC PHASES					
	I	II	III	IV	V	VI
Maximize Influenza vaccination	S,L,T	S,L,T	S,L,T	S,L,T	S,L,T	S,L,T
Maximize pneumococcal vaccination	S,L,T	S,L,T	S,L,T	S,L,T	S,L,T	S,L,T
Revise MIPS plans to current response measures	S,L,T	S,L,T	S,L,T	S,L,T		
Ensure SNS exercises test vaccine distribution	S	S				
Revise and add agreements as needed	S,L,T	S,L,T	S,L,T	S,L,T		
Review and modify communication materials	S	S				
Ensure relevant patient and vaccine data is collectable	S,F	S,F				
Use CDC Vaccine Information Statement	F,S,L	F,S,L	F,S,L	F,S,L	F,S,L	F,S,L
Continue to collaborate with community partners exercising MIPS	S,L	S,L	S,L	S,L		
Identify essential personnel who maintain community infrastructure	S,L	S,L	S,L	S,L	S,L	S,L
Create Pandemic Influenza Team			S	S		
Inform Pandemic Influenza Team of vaccine availability			S,F	S,F	S,F	S,F
Modify vaccination target pop. based on national & local data			S,F	S,F	S,F	S,F
Prioritize groups for vaccination			S	S	S	S
Review and update protocols for vaccine management	S	S	S	S	S	S
Ensure implementation of Investigational New Drug protocol			S,F	S,F	S,F	S,F
Ensure "Just-In-Time Training" & materials for vaccine administration	S,L,T	S,L,T	S,L,T	S,L,T	S,L,T	S,L,T
Provide updated information on vaccine availability	S,F	S,F	S,F	S,F	S,F	S,F
Coordinate vaccine delivery with other state agencies	S	S	S	S	S	S
Use appropriate ICS to review vaccine delivery plans			S	S	S	S
Activate MIPS plans			S	S		
Ensure vaccine is securely stored			S,L,T	S,L,T	S,L,T	S,L,T
Ensure vaccine is securely transported			F, S	S, L	S, L	S, L
Provide daily inventory and doses administered			S,L,T	S,L,T	S,L,T	S,L,T
Provide quality assurance in all phases of vaccine handling and administration	S	S	S	S	S	S
Provide recalls for second dose			S	S	S	S
Ensure influenza data entry into OSIS within 24 hours of administration			L,T	L,T	L,T	L,T
Ensure daily hand count of vaccine and supplies			L,T	L,T	L,T	L,T
Follow-up and investigate vaccine adverse events			L,T	L,T	L,T	L,T
Legend:						
F= Federal						
IE= Interstate (between states)						
S= State						
T= Tribal entities						
IA= Intrastate (within the same state)						
L=Local counties						

Pandemic Influenza Management Plan

Essential Element #4

Acquisition and Delivery of Antiviral Medications

This element details the mechanisms for delivery of antiviral drugs, which is one of the most critical components of the emergency response infrastructure required throughout the delineated phases of an influenza pandemic.

Four antiviral agents are FDA-approved for prophylaxis or treatment of Influenza A. Amantadine and Rimantadine are related medications that interfere with the replication of influenza viruses. Oseltamivir (Tamiflu®) and Zanamivir (Relenza®) are neuraminidase inhibitors that interfere with the release of viral particles from infected cells. These medications have been shown to have an efficacy rate of 70-90% in preventing illnesses caused by naturally occurring type A influenza virus strains. To be effective for prophylaxis, the drug must be given throughout the potential period of exposure, which may be several weeks. For treatment purposes, the selected antiviral medication must be initiated within 48 hours of onset of symptoms. Treatment with an antiviral may shorten the course of illness, decrease communicability and reduce the risk of influenza-related complications such as secondary bacterial pneumonia or sepsis. It is unknown whether these available antiviral drugs would achieve the same level of efficacy for prophylaxis or treatment of novel influenza strains. For example, Amantadine and Rimantadine have not been effective against the Asian H5N1 avian influenza strain when persons are infected by direct transmission from infected poultry in Asia. A recent report detailing treatment failure of two of eight Vietnamese patients who received Oseltamivir early in the course of their illness also raises the concern about rapidly evolving neuraminidase-resistant viral strains².

One of the listed federal and state responsibilities in the U.S. Department of Health and Human Services (HHS) Pandemic Influenza Plan released November 2005 is the acquisition of antiviral medications to treat 25% of the U.S. population. The HHS is in the process of acquiring a total of 50 million antiviral treatment courses for placement in the Strategic National Stockpile (SNS). Most of this (~80%) will be Oseltamivir; a smaller fraction (~20%) will be Zanamivir. HHS intends to hold these antiviral medications in the SNS for release to States and other eligible entities in accord with their respective populations. Oklahoma's expected allotment from the SNS by September 1, 2008 is 522,543 five-day treatment courses.

In the federal plan, state and local health departments are also directed to procure and maintain state, tribal and local stockpiles of antiviral drugs. Through the HHS Public Health Preparedness Cooperative Agreement, 62 Public Health Preparedness Projects have the opportunity to purchase Tamiflu® and Relenza® at federally negotiated contract prices with a 25% federal subsidy. The conditions for use of the subsidized antivirals are

²N. Engl. J. Med 2005;353:2667-72

detailed in the federal contracts and stipulate that these antiviral medications can only be used upon declaration of an influenza pandemic by the United States Secretary of HHS. On December 22, 2006, the Oklahoma State Department of Health (OSDH) submitted a chronological purchase plan to HHS for a total of 139,368 treatment courses (114,318 Tamiflu® and 25,050 Relenza®). This subsidized antiviral drug purchase plan is inclusive of orders that will be placed on behalf of other preparedness partners. Receipt of the first order for the state antiviral stockpile was June 2007. An additional state antiviral asset is being managed by the Metropolitan/Regional Medical Response Systems (inventory-rotated cache containing 600 Relenza® treatment courses and approximately 3,275 treatment courses of Tamiflu®, including 1,975 pediatric suspension units).

Figure 4.1, located at the end of this element, illustrates the grid of operational responsibilities for federal, state, local, tribal, and regional jurisdictions during an influenza pandemic.

A. INTERPANDEMIC PERIOD

1. The OSDH will investigate available suppliers and mechanisms to supply antiviral medications to Oklahoma.
2. The OSDH will review and revise Oklahoma's SNS Plan and Mass Immunization and Prophylaxis Strategy (MIPS) plans to ensure antiviral delivery components are updated and all partners are aware of updates.

B. PANDEMIC ALERT PERIOD

WHO PHASE 3, U.S. GOVERNMENT STAGE 1

1. The OSDH will maintain, update, refine and revise plans for receipt, storage and staging of antivirals which include the following (as of publication date):
 - a. Receipt and storage will occur at a pre-approved SNS warehouse location.
 - b. Procedures will be maintained in Chapter 16 of Oklahoma's SNS Plan.
 - c. Inventory, tracking and delivery of antivirals will be conducted through existing SNS Plan protocols (Oklahoma's SNS Inventory Management System).
2. The OSDH will acquire and pre-position subsidized antivirals at secure locations and/or with participating partners. Partners who purchased subsidized antivirals will be required to enter into memorandum of agreement with OSDH regarding the storage location, security and use prior to receipt of the antivirals. All OSDH

- purchased antivirals will be stored centrally until the hospital distribution plan is activated.
3. The OSDH has adopted the Antiviral Drug Priority Group Recommendations set forth in the HHS Pandemic Influenza Plan (see Appendix C) for allocation and distribution of antivirals in Oklahoma. To expedite delivery of these antivirals during a pandemic threat, the OSDH has developed three primary distribution schemes:
 - a. Initial Containment Distribution;
 - b. Hospital Distribution (for patient treatment and healthcare workforce support); and
 - c. Essential Personnel Distribution (state & local).
 4. The OSDH Pandemic Influenza Team will review, refine and revise antiviral distribution plans to ensure receipt by appropriate healthcare facilities and institutions to achieve prioritized usage. The team's summary recommendations will detail types of antiviral medications selected to deliver in each distribution scheme, the estimated number of doses by treatment or prophylaxis course needed for the targeted points of distribution and a priority group algorithm for each distribution scheme. Locations and responsible parties will be pre-identified for storage, maintenance and distribution of antiviral medications. The team will also begin developing more detailed priority group listings because the breadth of the interim HHS recommendations on priority groups for antiviral treatment and prophylaxis (see Appendix C) may be too inclusive and exceed the availability of antivirals. Further, definitions for certain priority groups such as public safety workers, essential service providers and key decision makers will need to be more clearly defined prior to a pandemic.
 5. The OSDH will continue conducting tabletop exercises to better identify, capture and resolve planning issues related specifically to antiviral distribution and use during an outbreak of pandemic influenza. The structure and goals of the exercises will take into account the following assumptions or considerations:
 - a. The expected supply of antiviral medications will be well below the demand during a severe influenza pandemic;
 - b. The availability of antiviral drugs through usual channels, i.e., retail pharmacies and pharmaceutical distributors, will not be possible during a pandemic;
 - c. The adverse effects from the antivirals may be relatively common ranging from mild gastrointestinal upset to significant neurological symptoms;

- d. The advantages of using the antiviral medications for prophylaxis may be outweighed by the needs for treatment use;
 - e. Traditional delivery mechanisms may need to be redesigned to effectively and safely dispense medications to targeted priority groups;
 - f. A review and possible revision of some of the MIPS procedures and forms, as a subset of Oklahoma's SNS plan, may be required to ensure consistency with countermeasure administrative systems; and
 - g. A comprehensive communication plan is in place to explain the rationale for distribution to certain groups to achieve adoption and compliance with the antiviral medications distribution plan.
6. The Office of the State Epidemiologist shall conduct the following pre-event planning activities:
- a. Ensure protocols for receipt of antiviral drugs from the SNS that have Investigational New Drug (IND) or Emergency Use Authorization (EUA) are developed and contained within Oklahoma's SNS Plan;
 - b. Estimate the amount of antiviral drugs needed to maintain essential services in Oklahoma;
 - c. Develop a surveillance plan for monitoring drug resistance among circulating influenza viral strains;
 - d. Develop educational materials for healthcare workers regarding the use of antiviral medications for treatment and prophylaxis of influenza (see Appendix D);
 - e. Produce and revise drug information sheets to meet anticipated needs, including translation into other languages; and
 - f. Monitor future federal decisions and guidance regarding influenza antiviral drugs to modify state plan as appropriate.

WHO PHASES 4 & 5, U.S. GOVERNMENT STAGE 2

(At this Stage, the first cases of infection with the pandemic influenza virus may reach the continental U.S. within 30 days).

- 1. The OSDH Pandemic Influenza Team will reassess options for additional purchase of antiviral medications to augment the state stockpile and modify the distribution algorithm based on available epidemiologic data.

2. The Pandemic Influenza Team will assess current federal, state and local supplies of antiviral medications.
3. The OSDH will test its SNS inventory management systems to ensure its effectiveness to track antiviral medications from:
 - a. SNS allocation,
 - b. OSDH stockpiles,
 - c. Hospital stockpiles,
 - d. Local pharmacies or pharmaceutical distributors, and
 - e. Metropolitan/Regional Medical Response System stockpiles.
4. The OSDH will finalize plans for drug distribution and administration and will communicate the plan to key personnel at county health departments, hospitals, Medical Response Systems, Oklahoma Department of Emergency Management and other strategic partners.
5. The OSDH will stockpile and reserve a supply of antivirals for use during the initial containment phase of a pandemic. Depending on the location of the first identified cases with infection of a novel influenza A virus subtype, a quantity of antivirals sufficient for treatment and prophylaxis of contacts will be shipped to the designated MIPS county warehouse located closest to the site of containment efforts. As Communicable Disease Epidemiologists and Public Health Nurses identify contacts, those individuals will be directed to a designated Point of Dispensing (POD) to obtain antivirals. County health departments' plans may include strike teams to deliver the medication directly to residences, particularly when a quarantine order is issued. Non-pharmaceutical community containment strategies will be employed concurrent with the antiviral distribution. The Initial Containment Distribution Plan will only be applicable during the very early phases of the pandemic.
6. The OSDH will distribute antivirals to approximately 120 critical care hospitals throughout Oklahoma. The antivirals in the state stockpile designated for hospital use will be labeled, stored and reserved accordingly at the OSDH SNS warehouse prior to hospital delivery or pickup. Antiviral medications will be distributed to hospitals for treatment of patients at high risk of complications from influenza and for prophylaxis of front line healthcare workers and their families. The quantity distributed for prophylaxis will be based on the total number of prioritized personnel employed by the hospital times a factor of three to accommodate the average family unit size. Hospitals must report the type and quantity of antiviral drugs stored in their pharmacies or on-site caches prior to distribution of additional antivirals from the OSDH SNS warehouse to achieve maximum

utilization of state resources. Collection of this data will be coordinated with the Oklahoma Hospital Association. The hospital distribution process will include:

- a. Transmitting a signed Memorandum of Understanding (see Appendix J) to the OSDH in advance of antiviral delivery or pickup;
 - b. Requiring advance faxing or electronic transmittal of a photo ID of the person(s) authorized to pick up antiviral supplies and their estimated time of arrival if a hospital arranges for a pickup of medications from a MIPS county warehouse site;
 - c. Providing instructions of delivery location, time and available security personnel if OSDH elects to make a direct delivery of antivirals to the hospital facility;
 - d. Facilitating signatures of authorized personnel on chain of custody forms to document delivery of antivirals;
 - e. Recommending storage of the antiviral drugs according to the conditions described in the Memorandum of Understanding (see Appendix J);
 - f. Advising designation of a primary and secondary hospital security agent to oversee security of the hospital's antiviral supply;
 - g. Utilizing existing physician prescribing procedures to dispense antiviral medications to ill patients, hospital personnel and family members;
 - h. Reporting any adverse events related to antiviral use to the OSDH Acute Disease Service's Public Health Investigation and Disease Detection of Oklahoma (PHIDDO) System;
 - i. Reporting any evidence of antiviral drug resistance to the OSDH Acute Disease Service and/or Office of the State Epidemiologist; and
 - j. Maintaining records and tracking dispensation of all antiviral inventories by prescription, disposal, loss, reallocation or return to the OSDH.
7. The OSDH will compile a comprehensive list of essential personnel to ensure continuity of OSDH operations and business in the event of an influenza pandemic. The OSDH will engage other state governmental agencies to provide the same in order to determine the quantity of antiviral applications to reserve for prophylaxis or treatment of essential state employees and their family members.
 8. The OSDH and its partners will develop a State Government Essential Personnel Distribution Plan. This plan will:

- a. Update Oklahoma's Catastrophic Health Emergency Plan to address continuity of business during an influenza pandemic;
- b. Identify a mechanism to compile a statewide list of essential personnel;
- c. Recommend each county health department and its partners compile a list of county and municipal employees with duties that are critical to maintaining essential services or infrastructure, such as food & water safety, utility services and law enforcement. (see Appendix K - Recommendations for Identifying Essential Personnel);
- d. Apportion and distribute antivirals, based on population, through the county health departments. This distribution plan will not be activated until (WHO) Phase 5 or later; and
- e. Require implementation of transportation and security procedures described in local MIPS plans.

C. PANDEMIC PERIOD

1. The OSDH will activate a full ICS during this phase thereby implementing the antiviral drug distribution program and the other countermeasure administration procedures from the OSDH Situation Room. Any available assets from the SNS will be requested according to the State's SNS Plan. Requests from hospitals, county health departments or governmental agencies for re-supply or additional antiviral drugs will be processed through the OSDH Situation Room.
2. The OSDH will coordinate antiviral acquisition and delivery activities with adjoining states and public health jurisdictions, including:
 - a. Oklahoma City-County Health Department,
 - b. Tulsa City-County Health Department,
 - c. Texas,
 - d. Kansas,
 - e. Arkansas,
 - f. Louisiana,
 - g. New Mexico,
 - h. Missouri, and

- i. Colorado.
3. The OSDH will review and modify the priority group recommendations for antiviral treatment and prophylaxis based on the most updated guidelines from the Centers for Disease Control and Prevention (CDC), findings from state surveillance activities and available inventory.
4. The OSDH will disseminate public health information to educate the public, medical community and other stakeholders about the need to prioritize the use of antiviral supplies for treatment and prophylaxis, the rationale for the identified priority groups and the need for appropriate use.
5. The OSDH will make any necessary modifications to the surveillance system to monitor the efficacy of antiviral drugs for treatment and prophylaxis and for the development of antiviral drug resistance.
6. The OSDH and the Oklahoma Department of Mental Health and Substance Abuse Service (ODMHSAS) will assist in coordinating mental health support in the community related to distribution of antiviral drugs and other countermeasures.

D. POSTPANDEMIC PERIOD

1. The OSDH Pharmacist will inventory any remaining antivirals and reconcile records as part of the OSDH demobilization efforts.
2. The Office of the State Epidemiologist will determine the urgency for restocking the depleted antiviral medication stockpile contingent on available resources.
3. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
4. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.

Delivery of Antiviral Medications

Figure 4.1 Grid of Operational Responsibilities

Acquisition and Delivery of Antiviral Medication	WHO PANDEMIC PHASES					
	I	II	III	IV	V	VI
Acquire antiviral drugs for Strategic National Stockpile			F	F	F	
Develop state, tribal and local antiviral stockpiles			S, T, L	S, T, L	S, T, L	
Receive, store and track inventory of state-owned antiviral drugs			S	S	S	S
Periodically review and revise priority groups as needed			F, S	F, S	F, S	F, S
Exercise antiviral distribution plans			S, T, L	S, T, L	S, T, L	
Develop a Countermeasure & Response Administration (CRA) system to track individuals' receipt of antivirals			S	S	S	
Include the antiviral distribution plan in Crisis and Emergency Risk Communication (CERC) Plan			S	S	S	S
Include IND and EUA protocols in distribution plans			S	S	S	S
Develop surveillance plan to monitor for antiviral resistance			S	S	S	S
Produce and revise antiviral drug information sheets			S	S	S	
Monitor federal decisions and guidance regarding antiviral drugs			S, T	S, T	S, T, L	S, T, L
Activate initial containment distribution plan					S, T, L	
Activate hospital distribution plan					S, T, L	S, T, L
Activate essential personnel distribution plan					S, T, L	S, T, L
Request state's allocation from SNS						S
Implement ICS to coordinate requests and distribution						S, IE
<p>Legend: F = Federal IE= Interstate (between states) S= State T= Tribal entities IA= Intrastate (within the same state) L= Local counties</p>						

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Pandemic Influenza Management Plan Essential Element #5 Health Systems and Emergency Response

This element details mechanisms ensuring coordination between health systems. These mechanisms are critical in the emergency response infrastructure's capability required throughout the delineated phases of an influenza pandemic. Emergency operation plans are required by all state, tribal and local governments and hospitals to address "all hazards." However, if an influenza pandemic occurs, it is likely to pose unique challenges that will overwhelm the healthcare system. Each county should incorporate a pandemic influenza management plan into its local emergency operations plan that is congruent to Oklahoma's Pandemic Influenza Management Plan. Key personnel most likely to be exposed to the novel influenza virus while performing their duties include public health workers, healthcare personnel, police, firefighters, emergency medical technicians, public works employees and other first responders. The effect of pandemic influenza on these personnel will influence the infrastructure for critical community services through widespread absenteeism in the workforce.

Figure 5.1, located at the end of this element, illustrates the grid of operational responsibilities for federal, state, local, tribal and regional jurisdictions during an influenza pandemic.

A. INTERPANDEMIC PERIOD

1. The OSDH will work with the Oklahoma Medical Reserve Corps to maintain a registry of volunteer healthcare personnel which include the following:
 - a. Physicians,
 - b. Nurses,
 - c. Mental health professionals,
 - d. Nursing assistants,
 - e. Physician assistants,
 - f. Veterinarians, and
 - g. Allied health professionals.
2. The OSDH will maintain an inventory or appropriate listing of the following items:
 - a. Daily hospital bed capacity;

- b. Estimated hospital bed surge capacity;
 - c. Intensive care unit/critical care unit capacity;
 - d. Hospital emergency department status;
 - e. Number of hospital negative pressure isolation rooms;
 - f. Estimated amount of available personal protective equipment;
 - g. Potential alternate care sites; and
 - h. Estimated numbers of ventilators that are operational in hospitals.
3. The OSDH will ensure Mass Immunization Prophylaxis Strategy (MIPS) plans are exercised at the local, regional and state level.
 4. The OSDH will develop contingency plans to address any of the following items, if deemed inadequate:
 - a. Availability of antibiotic medications to treat secondary bacterial pneumonia;
 - b. Availability of antiviral medications for treatment and prophylaxis according to distribution algorithms outlined in Element #4;
 - c. Adequacy of alternate care centers;
 - d. Adequacy of social and psychological services for families of victims; and
 - e. Communication and support for special populations.
 5. The OSDH will develop and conduct appropriate training/exercises for the public health workforce and response partners. Such exercises will test the response to pandemic influenza and document strengths, weaknesses and lessons learned in an after action report. To the extent possible, exercises will encompass multiple response levels (local, county, regional, tribal and state) and will include participation of all health, medical and mental health services response partners within the jurisdiction.
 6. The OSDH Terrorism Preparedness and Response Service (TPRS) will develop a list of essential community services (i.e., public safety, public works, healthcare and emergency response systems) that will be needed during a pandemic.

7. The OSDH Pandemic Influenza Committee with the Acute Disease Service will develop strategies for identifying and prioritizing groups for distribution of antiviral medications and vaccines (see Appendices B and C).
8. The OSDH will test the Oklahoma Health Alert Network (OK-HAN) to ensure 90% of emergency responders can be reached.
9. The OSDH TPRS will meet with medical system partners (Metropolitan Medical Response System, Regional Medical Response System, Regional Medical Planning Groups) and tribal entities to develop operational plans that address essential elements of response plans.
10. The OSDH TPRS will continue to work with medical system partners and county health departments to include the special needs populations in planning efforts.
11. The OSDH TPRS and the Trauma Division will continue monitoring the existing web-based reporting system related to hospital bed capacity.
12. The OSDH will consult with healthcare partners (through the existing Senior Advisory Committee) to share needs, expectations and identify gaps gleaned from local assessment data.
13. The OSDH TPRS will consult with the OSDH Office of General Counsel to determine the need for additional Memoranda of Agreement/Understanding between public health and healthcare systems. If determined to be appropriate, the OSDH will collaborate with the Regional Medical Planning Groups and the Senior Advisory Committee to draft such Memoranda of Agreement/Understanding.
14. The OSDH TPRS will collaborate with healthcare facilities to ensure that isolation/quarantine plans are developed and exercised.
15. The OSDH TPRS will develop a mechanism for obtaining information related to the use and need of critical equipment (such as ventilators) and other medical supplies necessary to respond to an influenza pandemic.
16. The OSDH TPRS in collaboration with the State Epidemiologist and the Acute Disease Service will develop messages directed toward healthcare providers regarding infection prevention and control and clinical guidelines pertaining to pandemic influenza.
17. The OSDH TPRS in collaboration with the Acute Disease Service will regularly provide updates to healthcare providers and facilities through the OK-HAN.

18. The OSDH TPRS in collaboration with the Acute Disease Service will develop a specific test message regarding infection prevention and control and clinical guidance as an element of regular OK-HAN testing.

B. PANDEMIC ALERT PERIOD

1. The OSDH will ensure a logistical system is in place to coordinate a public health and medical response to a pandemic influenza event.
2. The OSDH will ensure coordination with each Medical Emergency Response Center to assess the needs of the healthcare system within each Medical Emergency Response Center jurisdiction.
3. The OSDH will assess the needs of the healthcare system in regions without a Medical Emergency Response Center.
4. The OSDH will work with its response partners and Oklahoma blood banks in an attempt to ensure the uninterrupted delivery of blood products to hospitals and other treatment facilities.
5. The OSDH will collaborate with the OSDH Acute Disease Service to ensure surveillance activities as outlined in Element #2: Surveillance and Laboratory Diagnostics are coordinated with health systems and emergency response partners.

C. PANDEMIC PERIOD

1. The Commissioner of Health will seek gubernatorial declaration and activate Oklahoma's Catastrophic Health Emergency Plan.
2. The OSDH will implement a NIMS compliant Incident Command System (ICS) to coordinate the health and medical response at both the local and state level.
3. The OSDH will integrate key response partners (i.e. Metropolitan Medical Response Systems, Medical Emergency Response Centers and Medical Reserve Corps) into the ICS at both the local and state level where appropriate.
4. The OSDH will implement a communication plan to ensure ongoing transmission of vital information to hospital, emergency medical system and other health system providers. The OSDH communications plan will utilize a variety of redundant communications technologies including; secure web-based, landline, fax, radio (800 MHz, HEAR, HAM, HF, VHF) and satellite phones.
5. The OSDH will encourage "in-home" patient care for individuals who do not require hospitalization. The following steps may be taken to maximize the ability

of family members to care for sick at home as outlined in Element #6: Community Disease Control and Prevention:

- a. Distribute previously developed home care information packets;
 - b. Maximize use of home health agency personnel;
 - c. Activate the OSDH phone bank to answer questions from home-based caregivers;
 - d. Examine possible use of OSDH staff and activation of the Oklahoma Medical Reserve Corps as needs increase;
 - e. Work with state medical associations to identify community-based physicians available to perform “house calls;” and
 - f. Work with pharmacies and grocery stores to promote delivery of medications and food stocks.
6. The OSDH will continuously monitor the status of hospital emergency departments, hospital beds, emergency medical services, and other treatment facilities.
7. The OSDH will implement a mechanism to monitor availability and use of critical medical equipment as part of the OSDH communications plan.
8. The OSDH TPRS will work with the regional Medical Emergency Response Center to monitor stress on the healthcare system in order to determine the need for activation of alternate care sites. Alternate care sites could include, but are not limited to, the following:
- a. Nursing homes,
 - b. Specialty hospitals,
 - c. Ambulatory surgery centers,
 - d. Urgent care facilities,
 - e. School gymnasiums,
 - f. Auditoriums, and
 - g. Community centers.

9. The OSDH will deploy available medical volunteer personnel, equipment and supplies to augment local healthcare capacity in affected areas as appropriate and when available.

D. POSTPANDEMIC PERIOD

1. The OSDH will conduct demobilization that provides systematic, timely and orderly release of resources, personnel and agencies that have responded to the pandemic events.
2. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
3. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.

Health Systems and Emergency Response

Figure 5.1 Grid of Operational Responsibilities

Health Systems and Emergency Response	WHO PANDEMIC PHASES					
	I	II	III	IV	V	VI
Maintain updated volunteer registry	S	S	S	S, L	S, L	S, L
Maintain list of available medical system assets	S	S	S	S, L	S, L	L
Exercise MIPS plans statewide	S	S				
Develop plan for supply of inadequate resources	S	S	L			
Develop lists of essential community services	S		L			
Test HAN and other communication systems	S	S	S	S	S	
Conduct regional medical planning meetings	S	S	S	S	S	
Develop special needs plans	S	S	S, L	S, L		
Test and utilize EMSsystem®	S	S	S	S	S	S
Promote exercise of hospital isolation capability	S	S	S, L	S, L	S, L	
Develop contingency plan for obtaining critical assets		S	L			
Provide updates to medical system providers		S	S	S	S	S
Ensure resources and logistical system are in place		S			L	
Assess needs of the healthcare system		S	S	S, L	S, L	L
Coordinate messages with ADS				S	S	S
Coordinate activities with M/RMRS, MERC and MRC			S	S	S	S
Monitor surveillance reports distributed by ADS			S	S	S	S
Work with medical assoc to encourage in-home care			S			L
Determine need for alternative care centers						L
Request and receive SNS assets						S, F
Deploy available medical resources and volunteers						S
Actively monitor medical system needs						S
Legend: F= Federal IE= Interstate (between states) S= State T= Tribal entities IA= Intrastate (within the state) L= Local counties						

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Pandemic Influenza Management Plan

Essential Element #6

Community Disease Control and Prevention

This element addresses the containment of pandemic influenza in the community setting using non-pharmaceutical interventions such as isolation, quarantine and social distancing (see Appendix E). Non-pharmaceutical interventions will be critical in the early phases of a pandemic and will be imperative if vaccines and/or antiviral drugs are inadequate. These containment measures will reduce the risk of transmission by decreasing the probability of contact between infected and uninfected persons. Measures can be applied at the individual or community level and can be directed toward both the ill and the well. Individual measures include isolation of symptomatic patients, quarantine and monitoring of those having contact with ill persons, hand and respiratory hygiene, and use of personal protective equipment such as masks and gloves. Community measures include social distancing (such as restricting mass gatherings and closing schools) and limiting domestic and international travel. The applicability of specific non-pharmaceutical interventions will vary depending on the characteristics of the novel influenza virus, the assessment of risk, available resources and the public acceptance. Guided by the latest evaluation of surveillance, laboratory, epidemiologic and clinical data, the Oklahoma State Department of Health (OSDH) and county health departments will identify, recommend and implement the appropriate measures at each phase of the pandemic to minimize disease transmission and minimize impact on individuals (see Appendix F).

The objectives of non-pharmaceutical interventions are to:

1. Slow spread of disease while strengthening preparedness measures, including augmenting vaccine and antiviral medication supplies; and
2. Reduce the potential morbidity, mortality, economic impact and social disruption.

Several important assumptions and principles must be considered when planning for pandemic influenza (see Appendix G):

1. The OSDH non-pharmaceutical interventions will be the primary means of mitigating the impact of a pandemic in the absence of adequate or effective supplies of antiviral medications and vaccine.
2. The OSDH will provide the analysis of the effectiveness of most non-pharmaceutical interventions. However, it will depend upon the characteristics of the evolving virus including the pathogenicity, principal mode of transmission (droplet or aerosol), onset and duration of viral shedding, infectivity in different risk groups, proportion of asymptomatic infections and clinical presentation.

3. The OSDH selection of non-pharmaceutical interventions will depend upon the latest epidemiologic data, including the observed severity of the event, feasibility (e.g., cost and availability of resources and supplies) and the consequences on critical infrastructure, healthcare delivery and the public. Non-pharmaceutical interventions will change throughout the course of a pandemic event based on these same factors (see Appendix G).
4. The OSDH Acute Disease Service and the OSDH laboratory section will differentiate characteristics of a novel influenza virus from that of seasonal influenza virus. Although the incubation period for seasonal influenza ranges from 1 to 4 days, the incubation period of a novel strain may initially be unknown and may be longer. Therefore, the maximum incubation period between exposure and symptom onset for non-pharmaceutical intervention guidance will be 10 days. However, this timeframe may be adjusted once more is known about the incubation period of a novel strain during a pandemic.
5. The OSDH Office of Communications in conjunction with Acute Disease Service will ensure the content and methods of providing communications are timely, accurate and coordinated messages. Because communications is crucial, each entity involved in planning and responding to pandemic influenza must test methods of communication, including redundancies.

A. INTERPANDEMIC PERIOD

1. The OSDH Acute Disease Service will regularly assess and disseminate available surveillance, laboratory, epidemiologic and clinical data to describe the current influenza season.
2. The OSDH Acute Disease Service will regularly update and distribute Oklahoma-specific guidelines for control of influenza.
3. The OSDH will promote respiratory and hand hygiene to the public.
4. The OSDH Acute Disease Service in collaboration with Community Health Services will develop and distribute model protocols and best practices for isolation and quarantine (see Appendices G & H) for both individual and community applications. This information will be incorporated into the local pandemic influenza preparedness plans (which are integrated with local emergency operations plans). Sample protocols may include voluntary agreements, model isolation and quarantine orders, criteria for voluntary versus mandatory compliance, model procedures for medical evaluation, procedures for enforcing orders and alternative arrangements for non-compliant persons.
5. The OSDH Acute Disease Service will ensure all needed legal authorizations exist and will ensure the ability to invoke local and state legal authority on isolation, quarantine and social distancing strategies in a timely fashion.

6. The OSDH Office of the State Epidemiologist, Acute Disease Service, Office of General Counsel and county health departments will coordinate degree of enforcement with partners and stakeholders who may be involved in enforcing mandatory isolation or quarantine orders.
7. The OSDH and the State Public Health Veterinarian will coordinate with other appropriate agencies, such as the Oklahoma Department of Agriculture, Food and Forestry, to develop recommendations for control in animals and animal settings, including safety measures for persons who may have contact with potentially infected animals during culling and other at-risk activities.
8. The OSDH will collaborate with the Oklahoma Department of Emergency Management and county health departments to estimate current and surge supplies to support isolation, quarantine and other containment measures (see Appendix I).
9. The OSDH and county health departments will work with businesses during pre-pandemic planning to develop methods for implementing adult social distancing measures while maintaining business continuity (see Appendix E).
10. The OSDH and county health departments will utilize measures on individual, family and community response outlined in the county pandemic influenza plan during pre-pandemic planning.
11. The OSDH will work with the Oklahoma State Department of Education during pre-pandemic planning to develop methods for continuing essential nutrition programs (free/reduced breakfast and lunch programs) and education if child social distancing measures are implemented.
12. The OSDH and the county health departments will partner with the local mental health agencies to include plans for providing mental health supports to the community.
13. The OSDH will assist county health departments in working with business and community leaders in pandemic planning to ensure essential services and governmental functions are sustainable during a pandemic.
14. The OSDH will encourage county health departments to collaborate with local partners (business and government) to develop pandemic services for the citizens of Oklahoma.
15. The OSDH will assist county health department to assist school boards of each school system to develop a plan addressing closure of schools, cancellation of public events/programs, and other develop other social distancing methods.

16. The OSDH and county health departments will coordinate with the Department of Human Services to encourage daycare centers to develop a plan addressing closure and cancellation of social events.
17. The OSDH will encourage institutes of higher education to work with the Board of Regents to develop plans addressing cancellation of classes and social events.

B. PANDEMIC ALERT PERIOD

1. The OSDH Acute Disease Service will review existing clinical, laboratory, surveillance and epidemiologic data.
2. The OSDH and county health departments will evaluate and manage ill travelers from affected regions and will provide information to travelers about the symptoms and risk factors associated with the novel influenza virus, instructions for self-monitoring, instructions for isolation should symptoms develop and mechanism for notifying public health officials in the event of illness (see Appendix L).
3. The OSDH, in preparation for responding to probable or confirmed cases in Oklahoma, will consider implementing the following expected actions:
 - a. Publishing instructions for obtaining respiratory specimens for viral culture;
 - b. Emphasizing infection prevention and control recommendations specific to patient locations (see Essential Element #7);
 - c. Directing isolation of persons with suspected novel influenza virus infection. Depending on the characteristics and severity of illness, patients may be isolated at home or in hospital;
 - d. Defining guidelines for close contact management. Identifying and quarantining individuals or groups in contact with cases may be recommended. OSDH and county health departments will recommend contact tracing and management on a case-by-case basis. Decisions will be based on the likelihood that the suspected case is infected with a novel influenza strain, the likelihood that the virus is or may become transmitted from person-to-person, and the feasibility of contact tracing. Quarantine may be lifted as soon as the exposed contact has remained without symptoms for a complete incubation period; and
 - e. Promoting personal hygiene and healthy behaviors to the public.

4. The OSDH will encourage county health departments to develop partnerships with businesses to review and distribute pandemic influenza information as widely as possible throughout their communities.
5. The OSDH, in collaboration with county health departments, will educate public officials and first responders about influenza pandemics and steps that should be taken to plan for community responses through drills and exercises.

C. PANDEMIC PERIOD

1. The OSDH Acute Disease Service will continue to review existing clinical, laboratory, surveillance and epidemiologic data to recommend appropriate non-pharmaceutical interventions and will make technical recommendations on implementation of isolation and quarantine measures. In preparation for responding to probable or confirmed cases in Oklahoma, the OSDH will consider implementing the following:
 - a. Recommend measures that may be useful when there is limited disease transmission and cases can be traced to a common setting (a specific school or workplace);
 - b. Recommend isolation of persons with suspected novel influenza virus. Depending on the characteristics and severity of illness, patients may be isolated at home, a hospital or alternative facility; and
 - c. Define close contact management protocols. Identifying and quarantining individuals or groups in contact with cases may be recommended. OSDH and county health departments will recommend contact tracing and management on a case-by-case basis. Decisions will be based on the likelihood that the suspected case is infected with a novel influenza strain, the likelihood that the virus is or may become transmitted from person-to-person, and the feasibility of contact tracing. Quarantine may be lifted as soon as the exposed contact has remained without symptoms for a complete incubation period.
2. The OSDH and county health departments will investigate small clusters of human infection with novel influenza virus. Measures to contain small clusters of infection with novel influenza virus may include targeted antiviral prophylaxis and early detection of new cases.
3. The OSDH and county health departments will evaluate and manage ill travelers from affected regions and will provide information to travelers about the symptoms and risk factors associated with the novel influenza virus, instructions for self-monitoring, instructions for isolation should symptoms develop and mechanism for notifying public health officials in the event of illness (see Appendix L).

4. The OSDH will invoke local and state legal authority on isolation and quarantine, as needed, including those addressing the use of designated non-residential facilities for household cases and contacts that cannot or choose not to stay in their residences during isolation or quarantine.
5. The OSDH will monitor caches of supplies to support isolation, quarantine and other containment measures in cooperation with county health departments and emergency management partners.
6. The OSDH will focus on measures to increase social distancing. OSDH and county health departments may recommend the use of focused measures for social distancing. Focused measures may be useful when transmission is limited and most cases can be traced to a known transmission setting.
7. The OSDH will broaden community-based activity restrictions. Although the use of broader community-based measures in World Health Organization (WHO) Phase 5 is unlikely, OSDH and county health departments may consider and make recommendations for their use on a case-by-case basis using current epidemiologic, laboratory and clinical data.
8. The OSDH will recommend containment measures in the context of available vaccine and antiviral medications, the level of public cooperation, resources available to implement and monitor compliance and the severity of illness to include the following:
 - a. Recommend activity restrictions for persons with fever. Patient isolation and contact tracing and quarantine will likely cease, as these measures may no longer be feasible or useful. Persons with fever and respiratory symptoms and their contacts will be asked to stay at home and restrict their activities. The duration of the activity restrictions for persons with fever will be based on the infectious period associated with the specific novel influenza virus in question;
 - b. Recommend antiviral drugs for treatment or prophylaxis in order to contain the spread of the virus; and
 - c. Recommend mechanisms to manage small clusters of human infection with novel influenza virus.
9. The OSDH will activate community-based activity restrictions: OSDH and county health departments will implement community-based activity restrictions on an as-needed basis. Measures such as closing schools, canceling large public gatherings, curtailing public transportation and other community activity restrictions may be recommended.

10. The OSDH will assess compliance with and the effectiveness of containment measures on an ongoing basis and will recommend changes to the Commissioner of Health and OSDH senior leaders based on available epidemiologic and compliance information.
11. The OSDH will provide medical/technical support and make updated medical/technical recommendations to the Commissioner of Health and OSDH senior leaders. The recommendations will be distributed to county health departments as appropriate and may include the following:
 - a. Conduct limited management of close contacts because contact tracing and quarantine may not be practical due to overwhelmed resources and shifting disease control priorities; and
 - b. Implement community-based containment measures in conjunction with county health departments on an as-needed basis. Options include quarantine of groups of exposed persons or measures that effect either subsets or the entire community.
12. The OSDH and local health officers, where appropriate, will invoke local and state statutes on isolation and quarantine, as needed.
13. The OSDH Child Guidance Service in collaboration with the Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS) will provide mental health needs to those impacted by isolation and quarantine.

D. POSTPANDEMIC PERIOD

1. The OSDH will recommend appropriate measures after the incidence of disease has either decreased to a manageable level or has ceased.
2. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room. within 60 days.
3. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.

Community Disease Control and Prevention

Figure 6.1 Grid of Operational Responsibilities

Community Disease Control & Prevention	WHO PANDEMIC PHASES					
	I	II	III	IV	V	VI
Promote respiratory and hand hygiene to the public	S, L	S, L	S, L	S, L	S, L	S, L
Develop and distribute model protocols and best practices for isolation and quarantine	S	S				
Develop recommendations for control in animals and animal settings, including safety measures for persons who may have contact with potentially infected animals during culling and other at-risk activities	S	S				
Work with businesses during pre-pandemic planning to develop methods for implementing adult social distancing measures while maintaining business continuity	L	L				
Develop methods for continuing essential nutrition programs (free/reduced breakfast and lunch programs) and education	S, L	S, L				
Issue directions for obtaining specimens for viral culture	S	S	S	S	S	
Issue infection prevention and control recommendations specific to patient location	S	S	S	S	S	S
Isolate persons with suspected novel influenza virus			S, L	S, L	S, L	S, L
Identify and quarantine individuals in contact with cases			S, L	S, L	S, L	S, L
Manage small clusters of human infection with novel influenza virus						S, L
Monitor caches of supplies to support isolation, quarantine and other containment measures						S, L
Activity restrictions for persons with fever						S, L
Recommend antiviral drugs for treatment or prophylaxis in order to contain the spread of the virus						S, L
Child social distancing measures						S, L
Adult social distancing measures						S, L
Legend: F= Federal IE= Interstate (between states) S = State T= Tribal entities IA= Intrastate (within the state) L= Local counties						

Pandemic Influenza Management Plan

Essential Element #7

Infection Prevention and Control

This element provides guidance to healthcare and public health partners on basic principles of infection prevention and control for limiting the spread of pandemic influenza. These principles (see Appendix M) are common to the prevention of other infectious agents spread by respiratory droplets. This includes guidance on the selection and use of personal protective equipment; hand hygiene and safe work practices; cleaning and disinfection of environmental surfaces; handling of laboratory specimens and post-mortem care. The primary strategies for preventing pandemic influenza are the same as those for seasonal influenza: vaccination, early detection, treatment with antiviral medications (see Appendix N) and the use of infection prevention and control measures to prevent transmission during patient care. However, when a pandemic begins, a vaccine may not yet be widely available and the supply of antiviral drugs may be limited. The ability to limit transmission in healthcare settings will therefore rely heavily on the appropriate and thorough application of infection prevention and control measures. While it is commonly accepted that influenza transmission requires close contact via exposure to large droplets (droplet transmission), direct contact (contact transmission) or near-range exposure to aerosols (airborne transmission), the relative clinical importance of each of these modes of transmission is not known.

The infection prevention and control guidance provided in this supplement is based on knowledge of routes of influenza transmission, the pathogenesis of influenza and the effects of influenza control measures used during past pandemics and interpandemic periods (see Appendix N). Given some uncertainty about the characteristics of a new pandemic strain, all aspects of preparedness planning for pandemic influenza must allow for flexibility and real-time decision-making that take new information into account as the situation unfolds. The specific characteristics of a new pandemic virus's virulence, transmissibility, initial geographic distribution, clinical manifestation, risk to different age groups and subpopulations and drug susceptibility will remain unknown until the pandemic gets underway. If the new virus is unusual in any of these respects, the Oklahoma State Department of Health (OSDH) and its partners will provide updated infection prevention and control guidance.

Despite the prevalence of influenza year after year, most information on the modes of influenza transmission from person to person is indirect and largely obtained through observations during outbreaks in healthcare facilities and other settings (e.g., cruise ships, airplanes, schools and colleges); the amount of direct scientific information is very limited. However, the epidemiologic pattern observed is generally consistent with spread through multiple routes via close contact (i.e., direct exposure to large respiratory droplets, direct contact transfer of virus from contaminated hands to the nose or eyes, or exposure to small-particle aerosols in the immediate vicinity of the infectious individual [known as "short-range exposure to aerosols"]). The relative contributions and clinical importance of the different modes of influenza transmission are currently unknown.

The infection prevention and control measures recommended during the later part of the Pandemic Alert Period and into the Pandemic Period will be addressed in the following Appendices:

- Appendix M: Transmission and Protecting Healthcare Providers
- Appendix N: Management of Infectious Patients
- Appendix O: Occupational Health Issues
- Appendix P: Acute Care Hospital Recommendations
- Appendix Q: Long Term Care and Other Residential Facility Recommendations
- Appendix R: Emergency Medical Services Recommendations
- Appendix S: Home Health Settings Recommendations
- Appendix T: Outpatient and Ambulatory Settings Recommendations
- Appendix U: Care of Patients in Home and Alternative Sites Recommendations
- Appendix V: Recommendations for Infection Prevention and Control in Schools, Workplaces and Community Settings
- Appendix W: Summary of Infection Prevention and Control Recommendations

A. INTERPANDEMIC PERIOD

1. The OSDH Acute Disease Service will ensure the availability and dissemination of current information regarding infection prevention and control to healthcare professionals, healthcare facilities and the general public before, during and after a pandemic influenza emergency as guided by Centers for Disease Control and Prevention (CDC) (see Appendix O).
2. The OSDH Acute Disease Service will ensure methods of providing current information to appropriate healthcare providers and facilities to include the OSDH website, the Oklahoma Health Alert Network (OK-HAN) system and collaboration with healthcare-related partners such as the Oklahoma Hospital Association and other professional healthcare associations. Topics of these communications will include appropriate medical information and updates regarding all methods of infection prevention and control (see Appendices P, Q, R, S, T, U, and V).
3. The OSDH Community Health Services with the Acute Disease Service will ensure the OSDH Infection Control Guide addresses current issues pertaining to infection prevention and control and employee health within settings unique to the OSDH Central Office and to the local county health departments.
4. The OSDH Acute Disease Service will collaborate with the media to communicate current information to the general public.

B. PANDEMIC ALERT PERIOD

1. The OSDH will communicate updated information concerning the changing evidence base of pandemic influenza status through OK-HAN alerts.
2. The OSDH will ensure updated methods of infection prevention and control are provided to the state and regional communities for pandemic level recommendations (see Appendices P, Q, V, and W).
3. The OSDH will analyze Influenza-Like Illness (ILI) surveillance throughout the state, local and regional communities (see Appendices X, Y and Z).

C. PANDEMIC PERIOD

1. The OSDH will activate an appropriate Incident Command System (ICS) to coordinate activities.
2. The OSDH will emphasize educational activities to state, local and regional communities on infection prevention and control for general public.
3. The OSDH will provide recommendations for healthcare workers on reduction of exposure methods during an influenza pandemic.

D. POSTPANDEMIC PERIOD

1. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
2. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.
3. The OSDH will continue to coordinate planning activities with state, local, tribal and federal agencies and non-governmental organizations.

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Pandemic Influenza Management Plan

Essential Element #8

Clinical Guidelines

This element provides clinical procedures for the initial screening, assessment and management of patients with suspected novel influenza during the Interpandemic and Pandemic Alert Periods and for patients with suspected pandemic influenza during the Pandemic Period. The guidance is current as of November 2005 and is subject to change as experience is gained. Updates will be provided, as needed, on the U.S. Department of Health and Human Services (HHS) website <http://www.hhs.gov/pandemicflu/plan/pdf/HHSPandemicInfluenzaPlan.pdf>.

During the Interpandemic and Pandemic Alert Periods, early recognition of illness caused by a novel influenza A virus strain will rely on a combination of clinical and epidemiological features. During the Pandemic Period (in a setting of high community prevalence), diagnosis will likely be more clinically oriented because the likelihood will be high that any severe febrile respiratory illness is pandemic influenza. During periods in which no human infections with a novel influenza A virus strain have occurred anywhere in the world (see Appendix X) or when sporadic cases of animal-to-human transmission or rare instances of limited human-to-human transmission of a novel influenza A virus strain have occurred in the world (Pandemic Alert Period: Phases 3, 4), the likelihood of novel influenza A virus infection is very low in a returned traveler from an affected area who has severe respiratory disease or influenza-like illness. Since human influenza A and B viruses circulate worldwide among humans year-round, the possibility of infection with human influenza viruses is much higher and should be considered. Once local person-to-person transmission of a novel influenza A virus strain has been confirmed (Pandemic Alert Period: Phase 5), the potential for novel influenza A virus infection will be higher in an ill person who has a strong epidemiologic link to the affected area (see Appendix X).

Healthcare providers play an essential role in the detection of an initial case of novel or pandemic influenza in a community. If implemented early, identification and isolation of cases may help slow the spread of influenza within a community. Clinical awareness of novel or pandemic influenza disease can also benefit the individual patient, as rapid diagnosis and initiation of treatment can avert potentially severe complications. Detection is complicated by the lack of specific clinical findings and commercially available laboratory tests that can rapidly distinguish novel or pandemic influenza from seasonal influenza. In addition, neither the clinical characteristics of a novel or pandemic influenza virus strain nor the groups at highest risk for complications can necessarily be defined beforehand. Therefore, clinicians face significant challenges in: 1) quickly identifying and triaging cases, 2) containing the spread of infection, 3) beginning an efficient and comprehensive workup, 4) initiating antiviral and other supportive therapy and 5) anticipating clinical complications.

The clinical guidelines recommended during the later part of the Pandemic Alert Period and into the Pandemic Period will be addressed in the following:

- Appendix W: Summary of Infection Prevention and Control Recommendations
- Appendix X: Clinical Guidelines for Pandemic and Pandemic Alert Periods
- Appendix Y: Criteria for Evaluation for Patients with Possible Influenza
- Appendix Z: Summary of Initial Management of Patients Who Meet the Criteria for Novel Influenza

A. INTERPANDEMIC PERIOD

1. The OSDH Acute Disease Service will provide clinical procedures for initial screening, assessment, and management of patients suspected of novel influenza infection as guided by Centers for Disease Control and Prevention (CDC) (see Appendices X and Y).
2. The OSDH Acute Disease Service will assist in the education of state, local and regional acute care hospitals with clinical guidelines for pandemic influenza protocols (see Appendix P).
3. The OSDH Acute Disease Service will regularly coordinate and direct surveillance, laboratory, epidemiologic and clinical data during the current influenza season (see Appendix X, Y and Z).

B. PANDEMIC ALERT PERIOD

1. The OSDH will ensure current clinical guidelines are disseminated throughout regional, state and local acute care hospitals, and other medical facilities containing current CDC guidelines (see Appendix X).
2. The OSDH will provide information on quick identification and triaging of suspected cases of influenza (see Appendix AA).
3. The OSDH Acute Disease Service will provide epidemiological patterns of disease transmission for the state, local and regional medical facilities.

C. PANDEMIC PERIOD

1. The OSDH will activate an appropriate Incident Command System (ICS) to coordinate activities.
2. The OSDH will provide epidemiologic patterns of the pandemic influenza virus for the state, local and regional medical facilities.
3. The OSDH Acute Disease Service will provide updated clinical guidelines directed from CDC to the state, local and regional medical facilities.

D. POSTPANDEMIC PERIOD

1. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
2. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.
3. The OSDH will continue to coordinate planning and educational activities with state, local and regional medical facilities in clinical guideline procedures.

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Pandemic Influenza Management Plan

Essential Element #9

Risk Communication

This element details the primary objectives of providing a timely, consistent, accurate and persuasive flow of information to the public, health care providers and government leaders to keep them appropriately informed through each stage of the pandemic. The Oklahoma State Department of Health (OSDH) will utilize the OSDH Crisis and Emergency Risk Communications (CERC) Plan and the Oklahoma Health Alert Network (OK-HAN) as important tools to help achieve this goal.

The OSDH effort, inclusive of this document and the OSDH Emergency Risk Communications plan, is consistent with the Centers for Disease Control and Prevention (CDC) Influenza Pandemic Operational Plan Annex 1 (Crisis Communication).

Figure 9.1, located at the end of this element, illustrates the grid of operational responsibilities for federal, state, local, tribal, and regional jurisdictions during an influenza pandemic.

A. INTERPANDEMIC PERIOD

Pre-event messaging will focus on preparing the public psychologically and emotionally for a pandemic.

1. The OSDH anticipates an influenza pandemic is very likely in the next few years and when it occurs significant lifestyle changes will be required.
2. The OSDH anticipates that many people may die.
3. The OSDH will ensure messages employed in this phase will:
 - a. Recommend medically high-risk groups should obtain routine influenza vaccination.
 - b. Recommend medically high-risk groups should obtain pneumococcal vaccination to reduce risk of bacterial pneumonia as necessary.
 - c. Communicate openly in the event of an influenza pandemic that supplies of antivirals are likely to be limited and vaccine may not be available during early months of a pandemic. Non-pharmaceutical intervention, as outlined in the CDC document “Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the US,” is currently and will be a priority message.
 - d. Communicate openly in the event of an influenza pandemic that critical decisions regarding who gets vaccine or antivirals and who will be

unprotected – must be made wisely. These decisions will not be based on fairness issues but rather on who must be protected to ensure essential services are maintained for society to function (vaccine to those in critical occupations vs. those most vulnerable). These decisions could be unpopular.

- e. Recommend early planning for local businesses, hospitals and schools for the continuity of optional operational services during a pandemic.
 - f. Communicate openly in the event of an influenza that quarantine and travel advisories will become commonplace.
 - g. Recommend citizens begin practice good hygiene habits that can reduce the chance of catching germs and passing them on to others:
 - i. Washing hands frequently with soap and water or 60% alcohol-based hand sanitizer;
 - ii. Covering any cough or sneeze; and
 - iii. Staying home from work or school when sick.
 - h. Communicate openly in the event of an influenza pandemic that masks may become necessary under certain circumstances during the event.
 - i. Support government efforts to acquire and stockpile vaccines and antiviral medications when possible.
4. The OSDH Office of Communications will use the OSDH Crisis and Emergency Risk Communication (CERC) Plan to assess communication needs, capacities and any obstacles to reach the general public, health care providers, key policy makers and government leaders during a pandemic and adapt as necessary. The OSDH CERC Plan also addresses special population efforts.
5. The OSDH Office of Communications routinely uses tools that will be necessary during a pandemic to ensure continued readiness. Collaboration with local, state and federal partners is ongoing and regular communications ensure consistency of messaging.
6. The OSDH has a “Flu/pandemic flu shelf kit” with templates covering all aspects of potential risk communication materials. The shelf kit includes Spanish translations.
7. The OSDH Website can be quickly updated to include information for the public, healthcare providers, response partners and the media. OSDH will collaborate with the CDC Web Team and integrate Web content from <http://www.pandemicflu.gov> ensure maximum integration.

8. The OSDH and its county health department network are already established in Oklahoma as the recognizable source for information on seasonal influenza. As awareness has grown that avian influenza may at some point mutate to human-to-human transmission of the H5N1 highly pathogenic virus, the OSDH has used its resources to educate the public about a possible pandemic of influenza.

B. PANDEMIC ALERT PERIOD

1. The OSDH will review the OSDH CERC Plan and revise as necessary to include additional partners.
2. The OSDH will maintain and update key stakeholders on an ongoing basis on operational plans and guidance documents.
3. The OSDH will ensure protocols established in the OSDH CERC Plan are maintained.
4. The OSDH will continue to test the OK-HAN and OSDH Crisis and Emergency Risk Communications Plan systems through regularly scheduled exercises.
5. The OSDH Office of Communications will collaborate with Acute Disease Service to augment the OK-HAN system to accomplish a rapid means of inbound call triage.
6. The OSDH will continue to maintain primary and redundant communication systems (phone, Email, OK-HAN, redundant phone switches/lines, satellite phones/pagers and radio networks) and update as necessary.

C. PANDEMIC PERIOD

1. The OSDH event messaging will focus on the pandemic as a very real threat to the health and safety of Oklahomans. Messages will include:
 - a. Critical workers must be protected (vaccines, if available or antivirals);
 - b. Other persons must take extreme hygiene precautions;
 - c. Communities must implement their emergency response plans; and
 - d. Public involvement, including mobilization of volunteers, is essential.
2. The OSDH Office of Communications will employ the Crisis and Emergency Risk Communications Plan, including the establishment of a Joint Information Center, to handle the surge of media requests and public inquiries generated by the pandemic and provide guidance regarding disease susceptibility, diagnosis and

- management. An OSDH phone bank will activate to provide information and feedback necessary for message modification and evolution of change. The OSDH Joint Information Center will serve as a centralized point where multiple agencies working together can share information and disseminate consistent messages.
3. The OSDH will communicate regularly with partners at all levels to ensure continuity of messaging.
 4. The OSDH Acute Disease Service will use OK-HAN to alert healthcare providers of public health recommendations.

D. POSTPANDEMIC PERIOD

1. The OSDH Post-event messaging will focus on the following:
 - a. Directions to lift any community or individual public health restrictions that have been imposed;
 - b. Possible need for mental health counseling; and
 - c. Vaccination of high priority groups that did not receive vaccination, if vaccinations are available.
2. The OSDH will evaluate closing the phone bank during the After Action Report (AAR) process.
3. The OSDH Office of Communications will continue to employ its OSDH CERC Plan through the Joint Information Center.
4. The OSDH will utilize the OK-HAN to alert healthcare providers of any updates to public health recommendations.
5. The OSDH will provide messages employed in this phase, which will include the following:
 - a. Medically high-risk groups should obtain routine influenza vaccination; and
 - b. Medically high-risk groups should obtain pneumococcal vaccination to reduce risk of bacterial pneumonia.
6. The OSDH will review “lessons learned” from communications strategies employed in the first wave and adjust the OSDH Crisis and Emergency Risk Communications Plan accordingly.

7. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
8. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.

Risk Communication

Figure 9.1 Grid of Operational Responsibilities

Risk Communications	WHO PANDEMIC PHASES					
	I	II	III	IV	V	VI
Provide timely, accurate & persuasive info	F, S, L	F, S, L	F, S, L	F, S, L	F, S, L	F, S, L
Develop pre-event messages	F, S	F, S	F, S			
Communicate isolation, quarantine and travel advisories				IE,F,S,L,T	IE,F,S,L,T	IE,F,S,L,T
Assess communications needs, capacities and obstacles	S	S	S	S	S	S
Collaborate w/local, state & federal partners	S	S	S	S	S	S
Distribute "flu/pan flu shelf kit" to key partners		S	S			
Maintain website with updated information	S	S	S	S	S	S
Review and revise OSDH CERC	S	S	S			
Participate in ICS Command Staff when activated	S	S	S	S	S	S
Exercise CERC	S	S	S			
Develop inbound call triage capacity	S	S	S			
Establish and activate call center				S	S	S
Maintain primary and redundant communication systems	S	S	S	S, L	S, L	S, L
Deliver event messages			S, L	S, L	S, L	S, L
Establish JIC, when necessary				S	S	S
Communicate with and involve partners	S	S	S	S	S	S
Train appropriate staff in risk communication	S	S	S			
Develop appropriate materials for special populations	S	S	S			
Educate media through media roundtables	S	S	S			
Update CERC to reflect new knowledge and realities	S	S			S	S
Create AAR					S	S
Review lessons learned					S	S
Legend: F= Federal IE= Interstate (between states) S= State T= Tribal entities IA= Intrastate (within the same state) L= Local counties						

Pandemic Influenza Management Plan

Essential Element #10

Workforce Psychosocial Support

This element details the mechanisms needed in place to provide assurances that the workforce responding during a pandemic period receives the emotional and mental health support to remain effective and to reduce post-stress symptoms. The response to an influenza pandemic will pose substantial physical, personal, social and emotional challenges to healthcare providers, public health officials and other emergency responders and essential service workers. These responses may include:

1. Illness and death among colleagues and family members;
2. Fear of contagion and/or of transmitting disease to others;
3. Shock, numbness, confusion or disbelief;
4. Extreme sadness, grief, anger, guilt, exhaustion or frustration;
5. Sense of ineffectiveness and powerlessness;
6. Difficulty maintaining self-care activities (e.g. getting sufficient rest);
7. Prolonged separation from family;
8. Concern about children and other family members;
9. Constant stress and pressure to continue performing;
10. Domestic pressures caused by school closures, disruption in day care or family illness;
11. Stress of working with sick or agitated persons and their families and/or with communities under quarantine restrictions; or
12. Concern about receiving vaccines and/or antiviral drugs before other persons.

During an influenza pandemic the occupational stresses experienced by healthcare providers and other responders are likely to differ from those faced by relief workers in the aftermath of a natural disaster. Medical and public health responders and their families will be at personal risk for as long as the pandemic continues in their community. Therefore, the state of Oklahoma will need to undergo special planning to develop a network of local psychosocial supports to ensure adequate services are in place

for public health responders and other occupational work groups involved during the pandemic period during both interpandemic planning phases and pandemic alert periods.

The OSDH has recognized the following occupational groups that will participate in the response to an influenza pandemic. Plans will be developed which address the psychosocial needs of the following first responder groups:

1. Healthcare workers who provide medical care to ill persons;
2. Emergency field workers and other public health personnel who help control the spread of infection;
3. First-responder and non-governmental organizations whose employees assist affected groups (e.g., persons in quarantine or isolation);
4. Essential service workers whose activities maintain normal functions in the community and minimize social disruption; and
5. Family members of all of these groups.

Figure 10.1, located at the end of this element, illustrates the grid of operational responsibilities for federal, state, local, tribal and regional jurisdictions during an influenza pandemic.

A. INTERPANDEMIC PERIOD

1. The OSDH in collaboration with the Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS) will ensure that administrators, managers and supervisors are familiar with and actively encourage the use of tools and techniques for supporting staff and their families during times of crisis.
2. The ODMHSAS will provide behavioral health training for staff in hospitals and occupational health clinics (e.g., social workers, psychiatrists, nurses, psychologists, counselors) to help employees cope with grief, stress, exhaustion, anger and fear during an emergency.
3. The ODMHSAS will provide training in psychological support services to persons who are not behavioral health professionals (e.g., primary-care clinicians, emergency department staff, medical/surgical staff, safety and security personnel, behavioral health staff, chaplains, community leaders, staff of cultural and faith-based organizations).
4. The OSDH will identify additional resources that can be available to employees and their families during and after a pandemic.

5. The OSDH and ODMHSAS will work with the Oklahoma Medical Reserve Corps to maintain a registry of mental health personnel that includes the following:
 - a. Psychiatrists,
 - b. Psychologists,
 - c. Licensed Professional Counselors,
 - d. Licensed Marital and Family Therapists,
 - e. Licensed Social Workers, and
 - f. Licensed Behavioral Practitioners.
6. The OSDH and ODMHSAS will develop strategies to assist staff that have child-care or eldercare responsibilities or other special needs that might affect their ability to work during a pandemic.
7. The OSDH will work with the ODMHSAS to develop a packet of information for employers of response workers and providers of essential services to distribute during a pandemic. These materials will be designed to do the following:
 - a. Facilitate education and provide information to employees about emotional responses they or their colleagues and families (including children) might experience, see or observe during an influenza pandemic, and provide information about techniques for coping with these emotions;
 - b. Assist in the education of employees about the importance of developing “family communication plans” so that family members can maintain contact during an emergency;
 - c. Inform employees about workforce support services that will be available during an emergency, including confidential behavioral health services and employee assistance programs; and
 - d. Respond to questions about infection prevention and control practices to prevent the spread of pandemic influenza in the workplace and employment issues related to illness, sick pay, staff rotation and family concerns.
8. The OSDH and ODMHSAS, to prepare for implementation of workforce resiliency programs to cope with the special challenges posed by an influenza pandemic, will:

- a. Plan for a long response (i.e., more than 1 year). (Oklahoma experienced this need following the Murrah Building bombing in 1996 and Project Heartland was available for support for more than a year after the bombing occurred);
- b. Develop and train personnel in the use of a pre-deployment screening process for workers who will be assigned to sites away from their home for long periods of time to ensure these workers have appropriate levels of resources and supports; and
- c. Prepare partnerships with employee assistance programs and develop plans to augment these programs with social support services for the families of deployed workers.

B. PANDEMIC ALERT PERIOD

The OSDH and ODMHSAS will ensure that the resources and logistics are in place to provide a mental health response to a pandemic influenza event.

1. The OSDH and the ODMHSAS will provide education on the emotional stresses of disaster events to local, state and regional personnel.
2. The ODMHSAS will conduct workshops on Psychological First Aid for local, state and regional personnel.
3. The ODMHSAS will participate in local exercises of pandemic influenza for preparedness of state, local and regional personnel and mental health first responders.

C. PANDEMIC PERIOD

1. The OSDH and ODMHSAS during the pre-deployment phase will deliver workforce support materials that provide information on:
 - a. Emotional responses, stress reduction, relaxation;
 - b. Stigmatization; and
 - c. Telephone support lines.
2. The OSDH and ODMHSAS will conduct Pre-Deployment Screenings to ensure staff working long hours and in stressful conditions have the resources to sustain the deployment period.
3. The OSDH and ODMHSAS will ensure provision of ongoing briefings and training on behavioral health, resilience, stress management issues and coping

- skills and supervisor training in strategies for maintaining a supportive work environment.
4. The OSDH and ODMHSAS will identify stress control/resilience teams. These teams will assist and support employees and foster cohesion.
 5. The OSDH will identify resources to ensure rest and recuperation sites are available to staff who will be working long hours away from home. Sites should be stocked with healthy snacks and relaxation materials (e.g., music, relaxation tapes, movies), as well as pamphlets or notices about workforce support services.
 6. The ODMHSAS will expand confidential telephone support lines staffed by behavioral health professionals.
 7. The OSDH will deploy several persons as a team and/or assign “buddies” to maintain frequent contact and provide mutual help in coping with daily stresses.
 8. The OSDH and ODMHSAS will frequently monitor the occupational safety, health and psychological well-being of deployed staff.
 9. The OSDH will ensure that rest and recuperation sites are available and encourage their use.
 10. The OSDH and the ODMHSAS will provide ongoing access to information that includes:
 - a. International, national and local progress of the pandemic;
 - b. Work issues related to illness, sick pay, staff rotation, shift coverage, overtime pay, use of benefit time, transportation and use of cell phones;
 - c. Family issues, especially availability of child care;
 - d. Healthcare issues such as availability of vaccines, antiviral drugs and Personal Protective Equipment (PPE); actions to address understaffing or depletion of personal protective equipment and medical supplies; infection prevention and control practices as conditions change;
 - e. Approaches to ensure patients’ adherence to medical and public health measures without causing undue anxiety or alarm; management of agitated or desperate persons;
 - f. Guidance on distinguishing between psychiatric disorders and common reactions to stress and trauma;

- g. Management of those who fear they may be infected, but are not (“worried well”); and
 - h. Guidance and psychosocial support for persons exposed to large numbers of influenza cases and deaths and to persons with unusual or disturbing disease symptoms.
- 11. The OSDH and ODMHSAS will ensure services to families of employees who work in the field, work long hours and/or remain in hospitals or other workplaces overnight include:
 - a. Help with elder care and child care;
 - b. Help with other issues related to the care or well-being of children;
 - c. Provision of cell phone or wireless communication devices to allow regular communication among family members;
 - d. Provision of information via websites or hotlines;
 - e. Access to expert advice and answers to questions about disease control measures and self care;
 - f. Availability of services provided by community and faith-based organizations, as activities of these organizations can provide relaxation and comfort during trying and stressful times; and
 - g. Access to employee assistance programs that provide family members with instrumental support (e.g., assistance obtaining food and medicine) and psychosocial support (e.g., family support groups, bereavement counseling and courses on resilience, coping skills and stress management).
- 12. The OSDH and the ODMHSAS will ensure that other occupational groups that might participate in the response to pandemic influenza (including police, firefighters and community outreach workers) receive training materials that will help them anticipate behavioral reactions to public health measures such as movement restrictions (e.g., quarantine, isolation, closure of national or regional borders), especially if such actions are compounded by an economic crisis or abrupt loss of essential supplies and services.
- 13. The OSDH will review policies on personnel health and safety throughout the response and revise, as needed.

D. POSTPANDEMIC PERIOD

1. The OSDH will develop the After Action Reports (AAR) through interviews with responders and family members (including children) to assess lessons learned that might be applied to future emergency response efforts.
2. The OSDH and ODMHSAS will provide ongoing access to post-emergency psychosocial support services for responders and their families.
3. The OSDH will conduct an ongoing evaluation of the after-effects of the pandemic on employees' health, morale and productivity.
4. The OSDH will analyze all activated elements of the Oklahoma Pandemic Influenza Management Plan and prepare a draft After Action Report (AAR) within 60 days from the deactivation of the OSDH Situation Room.
5. The OSDH will review gaps identified in the AAR and implement improvements identified into future revisions of the Oklahoma Pandemic Influenza Management Plan.

Workforce Psychosocial Support

Figure 10.1 Grid of Operational Responsibilities

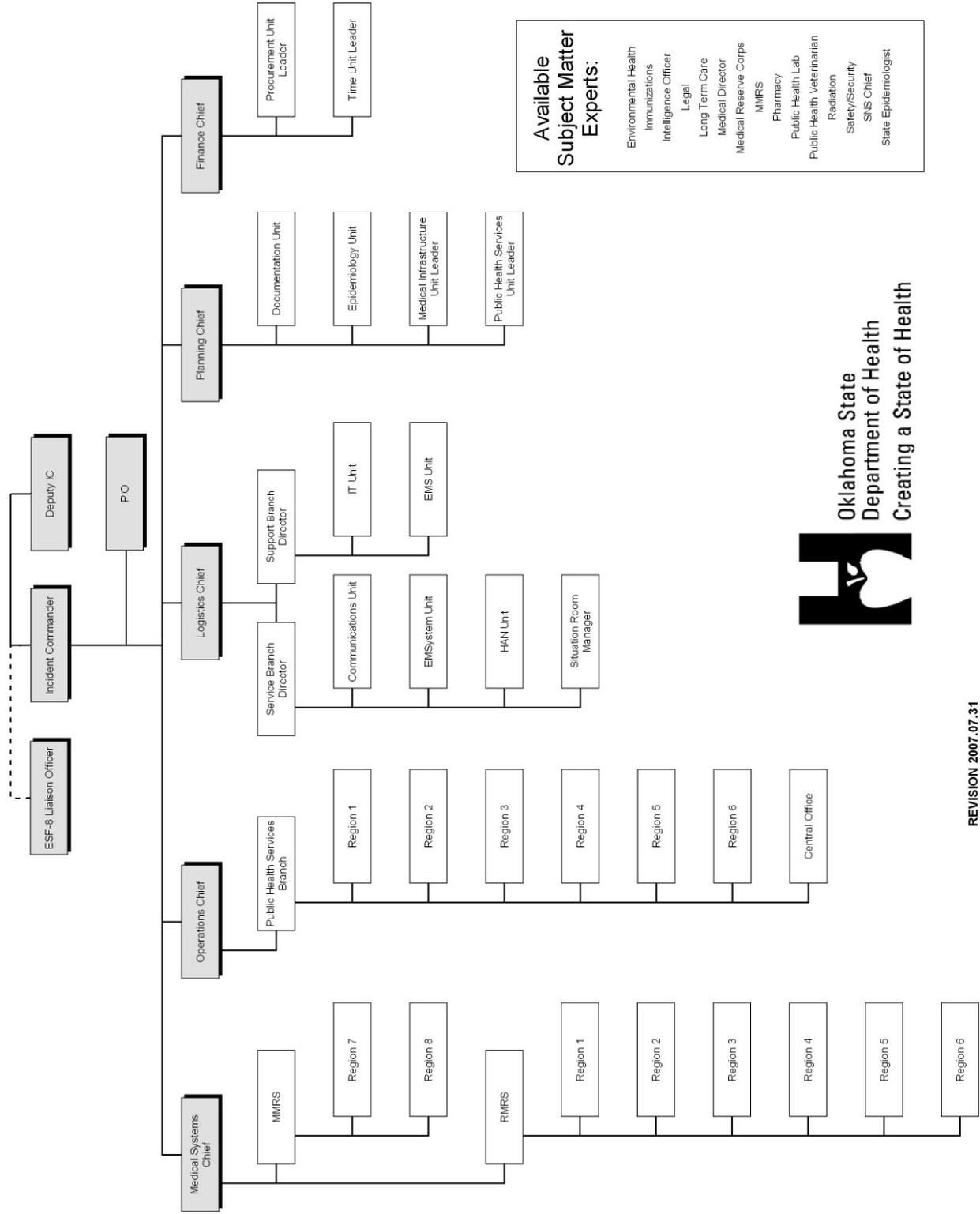
Mental Health Psychological Support	WHO PANDEMIC PHASES					
	I	II	III	IV	V	VI
Psychological First Aid Training			S,IA	S,IA	S,IA	S,IA
Maintain MRC/volunteer database - MH professionals	S	S	S	S,L	S,L	S,L
Development of workforce support materials	F,S,IA	F,S,IA	F,S,IA	F,S,IA		
Distribution of workforce support materials				S,IA,L	S,IA,L	S, IA, L
Pre-deployment screening - develop/train	S	S	S	S	S	S
Implement pre-deployment screening					S,L	S,L
Training for stress management				S,IA,L	S,IA,L	S,IA,L
Maintain healthy response sites - snacks, relaxation						S, L
Telephone support lines						S
Case management for responders						S,L
Case management for patients and families						S,L
Mental health support for responders					IE,S,L	IE,S,L
Mental health support for patients and families					IE,S,L	IE,S,L
Legend: F=Federal IE= Interstate (between states) S= State T= Tribal entities IA= Intrastate (within the same state) L=Local counties						

APPENDIX A
OSDH SCALABLE ICS ORGANIZATIONAL CHART

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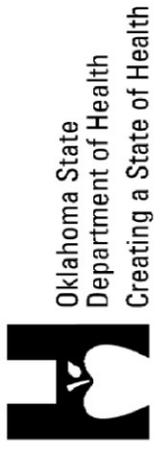
PUBLIC HEALTH RESPONSE OSDH

OSDH PANDEMIC ICS ORGANIZATION CHART



Available Subject Matter Experts:

- Environmental Health
- Immunizations
- Intelligence Officer
- Legal
- Long Term Care
- Medical Director
- Medical Reserve Corps
- MMRS
- Pharmacy
- Public Health Lab
- Public Health Veterinarian
- Radiation
- Safety/Security
- SNS Chief
- State Epidemiologist



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APPENDIX B

VACCINE PRIORITY GROUP RECOMMENDATIONS

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Table of Vaccine Priority Group Recommendations

Tier	Subtier	Population	Rationale
1	A	Vaccine and antiviral manufacturers and other essential manufacturing and critical support.	Need to ensure maximum production of vaccine and antiviral drugs.
		Medical workers and public health workers who are involved in direct patient contact, other support services essential for direct patient care and vaccinators (OK 117,000).	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.
		Immediate family members of those involved in direct patient care or supply and distribution of vaccine.	A sick family member may increase workforce absenteeism thereby creating disruption in the provision of vaccines or care.
1	B	Persons ≥ 65 yrs with 1 or more influenza high-risk conditions, not including essential hypertension (OK 455,000).	Those groups are at high risk of hospitalization and death. Excludes elderly in nursing homes and those who are immuno-compromised and would not likely be protected by vaccinations.
		Persons 6 months to 65 years with 2 or more influenza high-risk conditions, not including essential hypertension (OK 89,700).	
		Persons 6 months or older with history of hospitalization for pneumonia or influenza or other influenza high-risk conditions in the past year (OK 95,000).	
1	C	Pregnant women (OK 39,000).	In past pandemics and annual influenza, pregnant women have been at high risk; vaccination will also protect the infant who cannot receive vaccine.

Tier	Subtier	Population	Rationale
		Household contacts of severely immuno-compromised persons who would not be vaccinated due to likely poor response to vaccine (OK 25,000).	Vaccination of household contacts of immuno-compromised and young infants will decrease risk of exposure and infection among those who cannot be directly protected by vaccination.
		Household contacts of children \leq 6 months old (OK 65,000).	
1	D	Public health emergency response workers critical to pandemic response (OK 3,500).	Critical to implement pandemic response such as providing vaccinations and managing/monitoring response activities.
		Key government leaders.	Preserve decision-making capacity critical for managing and implementing a response.
2	A	Healthy persons 65 years and older (OK 230,000).	Groups that are also at increased risk but not as high risk as population in Tier 1 B.
		Persons 6 months to 65 years with 1 high risk condition (OK 465,000)	
		Persons 6 –23 months old, healthy (OK 728,000)	
2	B	Other public health emergency responders. Public safety workers, including police, fire, 911 dispatchers and corrections facility staff.	Includes critical infrastructure groups that have impact on maintaining health (e.g., public safety, transportation of medical supplies and food); implementing a pandemic response; and on maintaining societal functions.
		Utility workers essential for maintenance of power, water and sewage system functioning.	

Tier	Subtier	Population	Rationale
		Transportation workers transporting fuel, water, food and medical supplies, as well as public ground transportation.	
		Telecommunication/IT for essential network operations and maintenance.	
3	A	Other key government health decision-makers. Funeral directors/embalmers.	Other important societal groups for a pandemic response but of lower priority.

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APPENDIX C

ANTIVIRAL DRUG PRIORITY GROUP RECOMMENDATIONS

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Table of Antiviral Drug Priority Group Recommendations*

Group	Estimated population in Oklahoma	Strategy**	Rationale
1. Patients admitted to hospital.***	130,000	T	Consistent with medical practice and ethics to treat those with serious illness and who are most likely to die.
2. Healthcare workers with direct patient contact and emergency medical service providers.	119,600	P/T	Workers are required for quality medical care. There is little surge capacity among healthcare sector personnel to meet increased demand.
3. Highest risk outpatient, immuno-compromised persons and pregnant women.	32,500	T	Groups at greatest risk of hospitalization and death; immuno-compromised cannot be protected by vaccine.
4. Pandemic health responders (public health, vaccinators, vaccine and antiviral manufacturers), public safety (police, fire, corrections) and government decision-makers.	42,900	P/T	Groups are critical for an effective public health response to a pandemic.
5. Increased risk outpatients- young children 12-23 months old, person ≥ 65 yrs old and persons with underlying medical conditions.	220,000 (assuming 20% attack rate)	T	Groups are at high risk for hospitalization and death.

Group	Estimated population in Oklahoma	Strategy**	Rationale
6. Outbreak response in nursing homes and other residential settings	NA	PEP	Treatment of patients and prophylaxis of contacts is effective in stopping outbreaks; vaccination priorities do not include nursing home residents.
7. Healthcare workers in emergency departments, intensive care units, dialysis centers and emergency medical service providers.	15,600	P	These groups are most critical to an effective healthcare response and have limited surge capacity. Prophylaxis will best prevent absenteeism.
8. Pandemic societal responders (e.g., critical infrastructure groups as defined in the vaccine priorities) and healthcare workers without direct patient contact.	132,600	T	Infrastructure groups that have impact on maintaining health, implementing a pandemic response and maintaining societal functions.
9. Other outpatients.	447,500 (assuming 20% attack rate)	T	Include others who develop influenza and do not fall within the above groups.
10. Highest risk outpatients.	32,500	P	Prevents illness in the highest risk groups for hospitalization and death.

Group	Estimated population in Oklahoma	Strategy**	Rationale
11. Other healthcare workers with direct patient contact.	104,000	P	Prevention would best reduce absenteeism and preserve optimal functions.

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

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

***There is 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.

(This document was adopted from the HHS Pandemic Influenza Plan and estimated population modified for Oklahoma.)

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APPENDIX D

ANTIVIRAL MEDICATIONS FOR PLANNING AND RESPONSE

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Antiviral Agents for Planning and Response

I. Introduction

There are currently four approved medications in the United States that have antiviral activity against influenza A viruses. They fall into two drug classes, namely Adamantane derivatives (Rimantadine and Amantadine) and neuraminidase inhibitors (Oseltamivir and Zanamivir). Since a pandemic is expected to occur with the emergence of a novel human influenza A subtype virus from an animal reservoir or through re-assortment of influenza A viruses, this appendix will focus upon antiviral treatment and chemoprophylaxis of influenza type A. Pandemic influenza planning focuses on the use of neuraminidase inhibitors because resistance to Amantadine and Rimantadine can quickly develop when they are used for treatment of influenza thereby limiting their usefulness for large scale distribution. Because the neuraminidase inhibitors have different binding sites for the enzyme, cross-resistance between Zanamivir- and Oseltamivir-resistant viruses is variable. The U.S. Department of Health and Human Services (HHS) is purchasing antivirals for deposition in the Strategic National Stockpile (SNS). Currently the federal stockpile contains a mix of 80% Oseltamivir and 20% Zanamivir. A total of 81 million treatment courses are scheduled to be stockpiled in the Strategic National Stockpile by the end of 2008.

II. Neuraminidase inhibitors

The neuraminidase inhibitors, Zanamivir and Oseltamivir, are chemically related members of a new class of antiviral drugs for influenza that have activity against both influenza A and B viruses. When treatment is initiated within 48 hours of illness onset, both drugs are effective in decreasing shedding and reducing the duration of symptoms of influenza by approximately one day compared to placebo. Zanamivir is an orally inhaled powdered drug that is approved for treatment of influenza in persons aged five (5) years and older. Oseltamivir is an orally administered capsule or oral suspension that is approved for treatment of influenza in persons older than one (1) year. For both drugs, the recommended duration of treatment is five days. Oseltamivir is also approved for chemoprophylaxis of influenza in persons aged one (1) year and older. Controlled studies have demonstrated the efficacy of both drugs for prevention of symptoms of illness resulting from influenza infection in adults and adolescents compared to placebo. Little is published regarding the efficacy and effectiveness of neuraminidase inhibitors to prevent complications of influenza. One study of healthy and high-risk adolescents and adults treated with Oseltamivir compared to placebo showed a reduction in influenza-related lower respiratory tract complications combined with antibiotic therapy. Since Zanamivir and Oseltamivir were approved in 1999, there is limited clinical experience to assess adverse effects. Oseltamivir use has been associated with nausea and vomiting during controlled treatment studies compared to placebo. Nausea, diarrhea, dizziness, headache and cough have been reported during Zanamivir treatment, but the frequencies of adverse events were similar to inhaled powdered placebo drug. Few serious Central Nervous System adverse effects have been reported for the neuraminidase inhibitor drugs. Zanamivir is not generally recommended for use in persons with underlying respiratory disease because of the risk of precipitating bronchospasm.

III. Options for the recommended use of antiviral drugs during an influenza pandemic

A. Treatment only

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

When administered within two (2) days of illness onset to otherwise healthy adults, antiviral drugs can reduce the duration of uncomplicated influenza illness. None of the available agents has been demonstrated to be effective in preventing serious influenza-related complications (e.g., bacterial or viral pneumonia or exacerbation of chronic diseases).

To reduce the emergence of antiviral drug-resistant viruses, treatment of persons who have influenza-like illness should be discontinued as soon as clinically warranted, generally after three (3) to five (5) days of treatment or within 24 to 48 hours after the disappearance of signs and symptoms, depending on the agent used.

AMANTADINE: For treatment of influenza A in adults and children. Start within 24 to 48 hours after symptom onset and continue for 48 hours after disappearance of symptoms (usually 5 to 7 days).

- (1) 1 TO 9 YEARS: 5 milligrams/kilogram/day (up to 150 mg) orally in 2 divided doses.
- (2) 10 TO 12 YEARS: 100 milligrams orally twice a day (children over 10 years who weigh less than 40 kilograms: 5 milligrams/kilogram/day).
- (3) 13 TO 64 YEARS: 100 milligrams orally twice a day.
- (4) OVER 64 YEARS: Up to 100 milligrams orally once daily.

RIMANTADINE: For treatment of influenza A in adults and adolescents. Start within 24 to 48 hours after symptom onset and continue for 48 hours after disappearance of symptoms (usually 5 to 7 days).

- (1) 13 TO 64 YEARS: 100 milligrams orally twice a day.
- (2) OVER 64 YEARS: 50 to 100 milligrams orally twice a day.

ZANAMIVIR: For treatment of influenza A or B in adults and children 5 years and older who have been symptomatic for no more than two (2) days.

(1) 5 YEARS AND OLDER: Two inhalations (one 5 mg. blister per inhalation for total dose of 10 mg.) twice a day for 5 days via a hand-held, breath-activated plastic inhaler device.

OSELTAMIVIR: For treatment of influenza in adults and children who have been symptomatic for no more than two (2) days.

(1) ADULTS & ADOLESCENTS 13 YEARS AND OLDER: 75 milligrams orally twice a day for 5 days.

(2) CHILDREN 1 YEAR AND OLDER: Under 15 kilograms, 30 milligrams orally twice a day for five days; 15-23 kilograms, 45 milligrams orally twice a day for 5 days; 24-40 kilograms, 60 milligrams orally twice daily for 5 days; over 40 kilograms, 75 milligrams orally twice a day for five days.

B. Prophylaxis Only

The recommended use of antiviral drugs will be focused upon chemoprophylaxis to prevent symptoms of illness resulting from infection with a pandemic influenza A strain. This strategy will direct antiviral usage toward chemoprophylaxis of specific groups (e.g., persons at high-risk for complications from influenza and other groups such as healthcare workers). This strategy also addresses chemoprophylaxis of persons who are targeted to receive vaccination against the pandemic strain during the period between vaccination and the development of immunity. Recommendations for priority groups for antiviral chemoprophylaxis may be modified based upon the evolving epidemiology of the pandemic. Clinical care should be focused upon management of complications of influenza such as antibiotic treatment of patients with secondary bacterial pneumonia. Primary constraints on the use of antivirals for prophylaxis will be:

- Limited supplies,
- Increasing risk of side effects with prolonged use, and
- Potential emergence of drug-resistant variants of the pandemic strain.

TARGETED GROUPS: Factors such as cost, compliance and potential side effects should be considered when determining the period of prophylaxis. For maximal effectiveness, the drug must be taken each day for the duration of influenza activity in the community; however, to be most cost effective, antiviral prophylaxis may be emphasized only during the period of peak influenza activity in a community.

INTERIM USE BETWEEN VACCINATION AND IMMUNITY: The development of antibodies in adults after vaccination usually takes two (2) weeks, during which time chemoprophylaxis should be considered. Children who receive influenza vaccine for the first time can require up to six (6) weeks of prophylaxis (i.e., for two (2) weeks after the second dose of vaccine has been received). Chemoprophylaxis does not interfere with the antibody response to the vaccine.

IMMUNODEFICIENCY: Chemoprophylaxis may be indicated for high-risk persons who are expected to have an inadequate antibody response to influenza vaccine, including persons with HIV infection, especially those with advanced disease. No data are available concerning possible interactions with other drugs used in the management of patients with HIV infection. Such patients must be monitored closely if chemoprophylaxis is used.

PREGNANCY: Because of the unknown effects of influenza antiviral drugs on pregnant women and their fetuses, these agents should be used during pregnancy only if the potential benefit justifies the potential risk to the embryo or fetus (Centers for Disease Control and Prevention, 2003).

POST-EXPOSURE PROPHYLAXIS: Providing antiviral medications for ten days following potential exposure may be considered as a strategy to control small, well-defined disease clusters, such as outbreaks in nursing homes or other institutions, to delay or reduce transmission within the community or region.

RECOMMENDATIONS: To be effective as chemoprophylaxis, antiviral medication must be taken each day for the duration of influenza A activity in the community (generally 6 to 12 weeks). If a pandemic virus is susceptible to M2 ion channel inhibitors, Amantadine and Rimantadine should be reserved for prophylaxis, although drug resistance may emerge quickly. Rimantadine is preferred over Amantadine, because it is associated with a lower incidence of serious side effects.

AMANTADINE:

- (1) 1 TO 9 YEARS: 5 milligrams/kilogram/day (up to 150 mg) orally in two (2) divided doses (NOTE: 5 milligrams/kilogram/day of Amantadine syrup = 1 teaspoon/22 lb).
- (2) 10 TO 12 YEARS: 100 milligrams orally twice daily (children over 10 years who weigh less than 40 kilograms: 5 milligrams/kilogram/day).
- (3) 13 TO 64 YEARS: 100 milligrams orally twice daily.
- (4) OVER 64 YEARS: 100 milligrams orally once daily.

Available Forms: Symmetrel® syrup; Symadine® capsules; Amantadine-HCl syrup, capsules

RIMANTADINE:

- (1) 1 TO 9 YEARS: 5 milligrams/kilogram/day (up to 150 milligrams) orally in two (2) divided doses (NOTE: 5 milligrams per kilogram of rimantadine syrup = 1 teaspoon/22 pounds)
- (2) 10 TO 12 YEARS: 100 milligrams orally twice daily (children over 10 yr who weigh less than 40 kilograms: 5 milligrams per day)
- (3) 13 TO 64 YEARS: 100 milligrams twice daily
- (4) OVER 64 YEARS: 50 to 100 milligrams orally twice daily (NOTE: Elderly nursing home residents should be administered only 100 milligrams per day; a reduction in dose to 100 milligrams per day should be considered for all persons ≥ 65 years of age if they experience possible side effects when taking 200 milligrams per day)

Available Forms: Flumadine® tablets, syrup

OSELTAMIVIR:

- (1) ADULTS & ADOLESCENTS 13 YEARS AND OLDER: 75 milligrams orally, once daily
- (2) ADOLESCENTS 1 to 13 YEARS: Under 15 kilograms, 30 milligrams orally twice a day for five days; 15 to 23 kilograms, 45 milligrams orally twice a day for five days; 24 – 40 kilograms, 60 milligrams orally twice a day for five days; over 40 kilograms, 75 milligrams orally twice a day for five days.

Available Forms: Tamiflu® capsules, oral suspension

ZANAMIVIR:

- (1) ADULTS & CHILDREN 5 YEARS AND OLDER: Two inhalations (one 5 mg blister per inhalation for total dose of 10 milligrams) once daily

Manufactured by Glaxo-SmithKline as Relenza® (inhaled powder)

Package label information for the four currently approved antiviral medications in the United States can be found at: www.fda.gov/cder/drug/antivirals/influenza/default.htm

C. Treatment and targeted chemoprophylaxis

Under this option, the recommended use of antiviral drugs would be for both treatment of ill patients and chemoprophylaxis against illness resulting from infection with the pandemic strain. Given the expected demand and need for antiviral drugs in this strategy, rationing or specific targeting of priority groups for chemoprophylaxis should be addressed. Chemoprophylaxis would not be recommended for widespread use and would only be recommended for specific categories of individuals (e.g., laboratory workers with direct contact with pandemic virus strains in a containment facility, healthcare workers in direct contact with confirmed cases and for outbreak control in closed populations). This

strategy would also address the relative roles of all four antiviral agents (e.g., which drugs should be used for treatment and which should be used for chemoprophylaxis). This strategy should address the issues listed above under options A and B.

D. Targeted vaccination, targeted chemoprophylaxis, treatment

This strategy would recommend use of antiviral drugs for the highest priority groups for influenza vaccination until a vaccine-induced immune response is expected (e.g., duration until fourteen days post-vaccination). Unvaccinated high-risk persons and others could receive chemoprophylaxis against the pandemic strain for an unknown period - to be specified. Confirmed and suspected influenza cases would receive treatment within 48 hours of illness onset. Given the expected demand and need for antiviral drugs in this strategy, rationing or specific targeting of priority groups for chemoprophylaxis would need to be employed.

Epidemiologic Monitoring and Reporting

Data regarding moderate to severe adverse reactions experienced by persons receiving antiviral drugs for treatment or prophylaxis of pandemic influenza will be required to be submitted to the Acute Disease Service of the Oklahoma State Department of Health within 48 hours of occurrence. If Internet access is available, hospitals will be requested to submit this information into the Public Health Information and Disease Detection in Oklahoma (PHIDDO) system. Fields of information that will be required to perform epidemiologic monitoring are listed below.

If Internet service is unavailable, the information should be faxed to (405) 271-6680.

Any concerns about failing efficacy of the antiviral medications, should be promptly reported to the Office of the State Epidemiologist by calling (405) 271-4060 or (800) 234-5963.

Patient Last Name:	
Patient First Name:	
Date of Birth:	
Sex:	
Parent or Guardian name if minor child:	
Mailing Address:	
City, State, Zip code:	
Home phone #:	
Cell phone #:	
Prescribed antiviral drug & dosage:	
Disbursement date:	
Lot number or Drug Tracking ID #:	
Description of symptoms or condition:	
Onset of symptoms/condition:	
Relevant laboratory findings:	

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APPENDIX E

PRE-PANDEMIC PLANNING

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PRE-PANDEMIC PLANNING: The Pandemic Severity Index

(Source: U.S. HHS Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation, February 2007)

Appropriate matching of the intensity of intervention to the severity of a pandemic is important to maximize the available public health benefit that may result from using an early, targeted and layered strategy while minimizing untoward secondary effects. To assist pre-pandemic planning, this interim guidance introduces the concept of a Pandemic Severity Index based primarily on case fatality ratio, a measurement that is useful in estimating the severity of a pandemic on a population level and which may be available early in a pandemic for small clusters and outbreaks. Excess mortality rate may also be available early and may supplement and inform the determination of the Pandemic Severity Index. Pandemic severity is described within five discrete categories of increasing severity (Category 1 to Category 5). Other epidemiologic features that are relevant in overall analysis of mitigation plans include total illness rate, age-specific illness and mortality rates, the reproductive number, intergeneration time and incubation period. However, it is unlikely that estimates will be available for most of these parameters during the early stages of a pandemic; thus, they are not as useful from a planning perspective.

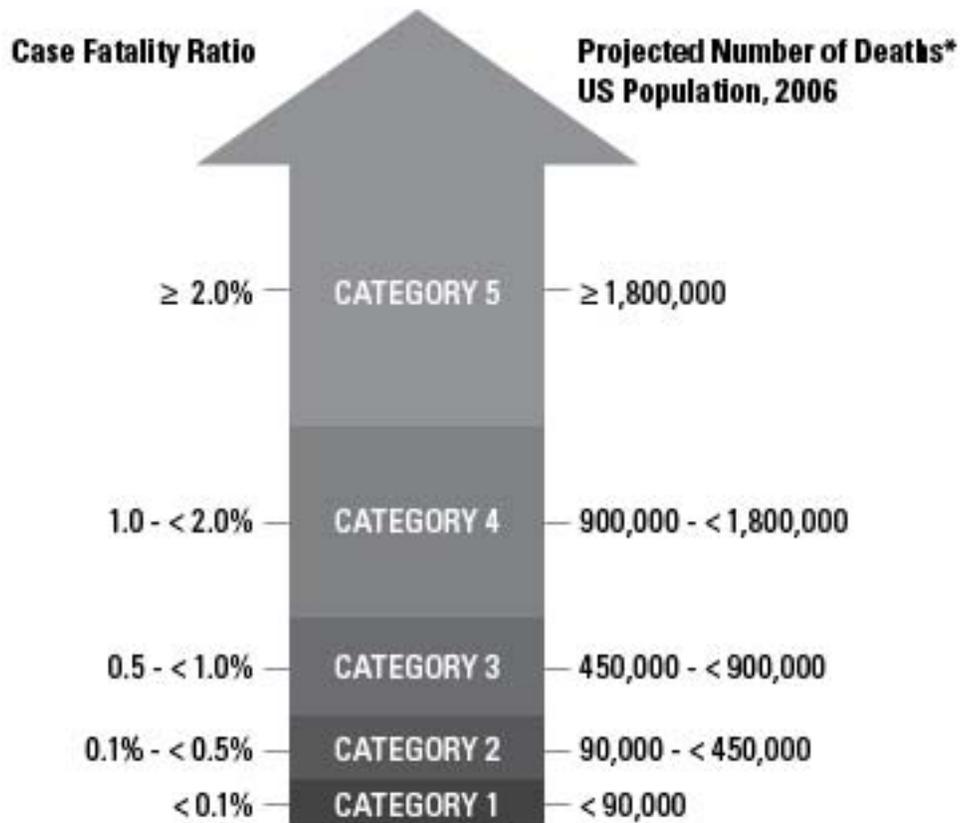
The Pandemic Severity Index provides U.S. communities a tool for scenario-based contingency planning to guide pre-pandemic planning efforts. Upon declaration by the World Health Organization (WHO) of having entered the Pandemic Period (Phase 6) and further determination of U.S. Government Stage 3, 4, or 5, the Centers for Disease Control and Prevention's (CDC) Director shall designate the category of the emerging pandemic based on the Pandemic Severity Index and consideration of other available information. Pending this announcement, communities facing the imminent arrival of pandemic disease will be able to define which pandemic mitigation interventions are most indicated for implementation based on the level of pandemic severity.

Multiple parameters may ultimately provide a more complete characterization of a pandemic. The age-specific and total illness and mortality rates, reproductive number, intergeneration time and incubation period as well as population structure and healthcare infrastructure are important factors in determining pandemic impact. Although many factors may influence the outcome of an event, it is reasonable to maintain a single criterion for classification of severity for the purposes of guiding contingency planning. If additional epidemiologic characteristics become well established during the course of the next pandemic through collection and analysis of surveillance data, then local jurisdictions may develop a subset of scenarios, depending upon, for example, age-specific mortality rates.

Data on case fatality ratio and excess mortality in the early course of the next pandemic will be collected during outbreak investigations of initial clusters of human cases, and public health officials may make use of existing influenza surveillance systems once widespread transmission starts. However, it is possible that at the onset of an emerging

pandemic, very limited information about cases and deaths will be known. Efforts now to develop decision algorithms based on partial data and efforts to improve global surveillance systems for influenza are needed.

Figure 1. Pandemic Severity Index



*Assumes 30% illness rate and unmitigated pandemic without interventions

Use of Nonpharmaceutical Interventions by Severity Category

This section provides interim pre-pandemic planning recommendations for use of pandemic mitigation interventions to limit community transmission. These planning recommendations are likely to evolve as more information about their effectiveness and feasibility becomes available. To minimize economic and social costs, it will be important to judiciously match interventions to the pandemic severity level. However, at the time of an emerging pandemic, depending on the location of the first detected cases, there may be scant information about the number of cases and deaths resulting from

infection with the virus. Although surveillance efforts may initially only detect the “herald” cases, public health officials may choose to err on the side of caution and implement interventions based on currently available data and adjust as more accurate and complete data becomes available. These pandemic mitigation measures include the following:

- Isolation and treatment (as appropriate) with influenza antiviral medications of all persons with confirmed or probable pandemic influenza. Isolation may occur in the home or healthcare setting, depending on the severity of the individual’s illness and/or the current capacity of the healthcare infrastructure.
- Voluntary home quarantine of members of households with confirmed or probable influenza case(s) and consideration of combining this intervention with the prophylactic use of antiviral medications, providing sufficient quantities of effective medications exist and that a feasible means of distributing them is in place.
- Dismissal of students from schools (including public and private schools as well as colleges and universities) and school-based activities and closure of childcare programs, coupled with protecting children and teenagers through social distancing in the community to achieve reductions of out-of-school social contacts and community mixing.
- Use of social distancing measures to reduce contact between adults in the community and workplace, including, for example, cancellation of large public gatherings and alteration of workplace environments and schedules to decrease social density and preserve a healthy workplace to the greatest extent possible without disrupting essential services. Enable institution of workplace leave policies that align incentives and facilitate adherence with the Nonpharmaceutical Interventions (NPIs) outlined above.

Planning for use of these nonpharmaceutical interventions is based on the Pandemic Severity Index, which may allow more appropriate matching of the interventions to the magnitude of the pandemic. All interventions should be combined with infection control practices, such as good hand hygiene and cough etiquette. In addition, the use of personal protective equipment, such as surgical masks or respirators, may be appropriate in some cases and guidance on community face mask and respirator use will be forthcoming. Guidance on infection control measures, including those for workplaces, may be accessed at <http://www.pandemicflu.gov/>.

For Category 4 or Category 5 pandemics, a planning recommendation is made for use of all listed nonpharmaceutical interventions. In addition, planning for dismissal of students from schools and school-based activities and closure of childcare programs, in combination with means to reduce out-of-school social contacts and community mixing for these children, should encompass up to 12 weeks of intervention in the most severe

scenarios. This approach to pre-pandemic planning will provide a baseline of readiness for community response even if the actual response is shorter. Recommendations for use of these measures for pandemics of lesser severity may include a subset of these same interventions and possibly suggestions that they be used for shorter durations, as in the case of the social distancing measures for children.

For Category 2 or Category 3 pandemics, planning for voluntary isolation of ill persons is recommended, whereas other measures (voluntary quarantine of household contacts, social distancing measures for children and adults) are to be implemented only if local decision-makers have determined that characteristics of the pandemic in their community warrant these additional mitigation measures. However, within these categories, pre-pandemic planning for social distancing measures for children should be undertaken with a focus on duration of four (4) weeks or less, distinct from the longer timeframe recommended for pandemics with a greater Pandemic Severity Index.

For Category 1 pandemics, only voluntary isolation of ill persons is recommended on a community-wide basis, although local communities may still choose to tailor their response to Category 1-3 pandemics differently by applying nonpharmaceutical interventions on the basis of local epidemiologic parameters, risk assessment, availability of countermeasures and consideration of local healthcare surge capacity. Thus, from a pre-pandemic planning perspective for Category 1, 2 and 3 pandemics, capabilities for both assessing local public health capacity and healthcare surge, delivering countermeasures and implementing these measures in full and in combination should be assessed.

APPENDIX F

COMMUNITY MITIGATION STRATEGY

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Summary of the Community Mitigation Strategy by Pandemic Severity

Interventions* by Setting	Pandemic Severity Index		
	1	2 & 3	4 & 5
Home			
Voluntary isolation of ill at home (adults and children), combine with use of antiviral treatment as available and indicated	Recommended	Recommended	Recommended
Voluntary quarantine of household members in homes with ill persons (adults and children); consider combining with antiviral prophylaxis if effective, feasible, and quantities sufficient	Generally NOT Recommended	Consider	Recommended
School			
Child Social Distancing - dismissal of students from schools and school-based activities, and closure of child care programs	Generally NOT Recommended	Consider ≤ 4 Weeks	Recommended ≤ 12 Weeks
- reduce out-of-school social contacts and community mixing		Consider ≤ 4 Weeks	Recommended ≤ 12 Weeks
Workplace/Community			
Adult Social Distancing - decrease number of social contacts (e.g., encourage teleconferences, alternatives to face-to-face meetings)	Generally NOT Recommended	Consider	Recommended
- increase distance between persons (e.g., reduce density in public transit, workplace)			
- modify, postpone, or cancel selected public gatherings to promote social distance (e.g., stadium events, theater performances)			
- modify workplace schedules and practices (e.g., telework staggered shifts)			

Generally Not Recommended = Unless there is a compelling rationale for specific populations or jurisdictions, measures are generally not recommended for entire populations as the consequences may outweigh the benefits.

Consider = Important to consider these alternatives as part of a prudent planning strategy, considering characteristics of the pandemic, such as age-specific illness rate, geographic

distribution and the magnitude of adverse consequences. These factors may vary globally, nationally and locally.

Recommended = Generally recommended as an important component of the planning strategy.

*All these interventions should be used in combination with other infection control measures, including hand hygiene, cough etiquette and personal protective equipment such as face masks. Additional information on infection control measures is available at <http://www.pandemicflu.gov/>.

†This intervention may be combined with the treatment of sick individuals using antiviral medications and with vaccine campaigns, if supplies are available.

§Many sick individuals who are not critically ill may be managed safely at home. The contribution made by contact with asymptotically infected individuals to disease transmission is unclear. Household members in homes with ill persons may be at increased risk of contracting pandemic disease from an ill household member. These household members may have asymptomatic illness and may be able to shed influenza virus that promotes community disease transmission. Therefore, household members of homes with sick individuals would be advised to stay home.

**To facilitate compliance and decrease risk of household transmission, this intervention may be combined with provision of antiviral medications to household contacts, depending on drug availability, feasibility of distribution and effectiveness; policy recommendations for antiviral prophylaxis are addressed in a separate guidance document.

††Consider short-term implementation of this measure—that is, less than 4 weeks.

§§Plan for prolonged implementation of this measure—that is, 1 to 3 months; actual duration may vary depending on transmission in the community as the pandemic wave is expected to last 6-8 weeks.

APPENDIX G

NONPHARMACEUTICAL INTERVENTIONS

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NONPHARMACEUTICAL INTERVENTION DECISION-MAKING

The effectiveness of nonpharmaceutical interventions will depend on epidemiologic characteristics of a novel influenza strain. Influenza characteristics that may limit the utility of interventions include a short incubation period, short generation time (average time between infection of the case and infection of the contacts), asymptomatic transmission and a non-specific clinical presentation that will make it more difficult to differentiate influenza from other causes of influenza-like illness.

Determinants for Nonpharmaceutical Interventions

OSDH will routinely evaluate information on cases, contacts and availability of public health and healthcare resources to guide decision-making on nonpharmaceutical interventions throughout the course of a pandemic. Determinants that will be considered include:

Case Information:

- a. Number of cases (absolute or estimated),
- b. Incidence rate of cases throughout the pandemic,
- c. Number and percentage of hospitalized cases,
- d. Number and percentage of cases with no identified epidemiologic link,
- e. Morbidity (including disease severity) and mortality, and
- f. Number of cases occurring among contacts.

Healthcare resources:

- a. Hospital/facility bed capacity,
- b. Staff resources,
- c. Patient/staff ratio,
- d. Number of ill or absent staff members,
- e. Availability of ventilators and/or other respiratory equipment,
- f. Availability of personal protective equipment and other measures, and
- g. Availability of therapeutic medications (influenza and non-influenza specific).

Public health resources:

- a. Public health staff resources,
- b. Ability to rapidly trace contacts (number of untraced/interviewed contacts),
- c. Ability to implement and monitor quarantine (staff member to contact ratio),
- d. Number of cases under active or passive isolation, and
- e. Number of contacts under active or passive quarantine.

To assist pre-pandemic planning and response, the U.S. Department of Health and Human Services (HHS) developed “Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation.” This interim guidance introduces the concept of a pandemic severity index based primarily on case fatality ratio, a measurement that may be utilized to estimate the severity of a pandemic on a population level to guide implementation of appropriate nonpharmaceutical

interventions. The Pandemic Severity Index and HHS guidance for nonpharmaceutical interventions is referenced in this appendix.

NONPHARMACEUTICAL INTERVENTIONS

Personal Hygiene

Throughout all stages of a pandemic, public health risk communication will stress the importance of personal hygiene and healthy behaviors such as hand hygiene, cough etiquette, adequate sleep, exercise and a balanced diet. Persons with signs and symptoms of a respiratory infection will be encouraged to:

- a. Cover the nose/mouth when coughing or sneezing;
- b. Use tissues to contain respiratory secretions;
- c. Dispose of tissues in the nearest waste receptacle after use;
- d. Wash/sanitize hands after contact with respiratory secretions and contaminated objects; and
- e. Stay at home and at least 3 feet away from others while symptomatic.

Phone Banks

An OSDH phone bank may be activated during a pandemic to address the surge in calls from concerned citizens regarding prevention, recognition of symptoms and direction of persons with symptoms to an appropriate resource for evaluation and care. Public health staff will be trained and provided standard responses to address questions. Information may also be distributed to local phone banks (211 systems, reverse 911 systems) to address the surge in calls from concerned citizens. The Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS) will maintain a toll free number to address the psychological concerns related to exposure.

Health Alert Network System

The Oklahoma Health Alert Network (OK-HAN) system will be used to disseminate surveillance, laboratory and epidemiologic information to Oklahoma clinicians, hospital personnel, county health departments and other state public health authorities. The OK-HAN will be used to distribute information describing the occurrence of seasonal influenza, changes in the status of pandemic influenza in the United States and Oklahoma and recommendations for diagnosis, reporting and control of pandemic influenza associated cases.

Isolation

Isolation is the separation or restriction of movement or activities of a person with an infectious disease to prevent transmission to others. Strict isolation is confinement of the isolated individual to a room with a separate bed and contact only with persons taking care of the individual. There must be appropriate disinfection and disposal of bodily excretions, secretions, garments and objects in contact with the isolated individual. Persons caring for the isolated individual must take precautions to prevent infection and further spread.

Ideally, persons who meet the criteria for novel influenza and do not require hospitalization should be isolated in their homes. Influenza-like illness individuals not requiring hospitalization will be requested to remain in voluntary isolation at home for the infectious period, 10 days after symptom onset or the defined timeframe once the infectious period of the pandemic influenza strain is known. Infection control precautions and procedures for isolating influenza patients – at home or in a hospital – are described in the Infection Control Section.

Contact Tracing and Management

Contact tracing (identifying individuals exposed to a confirmed or suspected case), quarantine and prophylaxis will be important measures in the initial response to slow the spread of pandemic influenza.

A case's contacts may include:

- a. Family members who have been exposed;
- b. Groups of individuals at public gatherings where an exposure has been identified;
- c. Persons on an airplane, cruise ship or enclosed conveyance;
- d. School students, teachers and school personnel who have been exposed; and
- e. Healthcare providers who are treating an influenza case.

If personal protection equipment (see Infection Control Section) is used, an individual will not be considered a close contact. Decisions on whether to trace a patient's close contacts and how to manage them will be made on a case-by-case basis as determined by the disease characteristics, type and duration of the exposure and feasibility of locating contacts. The OSDH anticipates that contact tracing will only be a viable containment activity very early in the pandemic when the very first few cases are identified.

Quarantine

Quarantine is the limitation of freedom of movement of persons that have been exposed to a communicable disease for a period of time equal to the longest usual incubation period of the disease in order to prevent contact with those individuals not exposed. Quarantine may be lifted as soon as the exposed contact has remained without signs or symptoms of disease for a complete incubation period for influenza disease. The duration of quarantine will be based on the maximum incubation period of influenza, 10 days following the last date of exposure to a pandemic influenza case. However, the timeframe will be adjusted as more is known about the novel strain.

Methods for quarantine:

- a. Home quarantine will generally be the preferred setting for quarantine since it will be the least disruptive to a person's routine. Alternate care sites for quarantine may be necessary in certain situations such as persons who do not have a home suitable for this purpose or those who require quarantine while away from their home (e.g. during travel).

- b. Quarantine may be applied to an individual or to a group of persons who are exposed at a large public gathering or to persons believed exposed during travel.
- c. Quarantine may be applied on a wider population or geographic basis with the voluntary or enforced prohibition of movements or activities.
- d. Workplace quarantine allows exposed employees to work, but employees must observe activity restrictions while off duty. Monitoring for signs and symptoms before reporting to work and the use of personal protective equipment while at work will be required. This strategy will be applicable for persons who provide essential services while minimizing the adverse impact of essential services provision.

An evaluation of the home for its suitability for quarantine should be performed before individuals are placed in quarantine to ensure that the environment will be able to meet the individual's basic needs for as long as 10 days. A quarantine evaluation form that identifies factors to be considered when evaluating a home for quarantine is located in Appendix G.

Management of close contacts may be passive or active monitoring without activity restriction and/or quarantine at home. A symptom log form for monitoring development of symptoms during quarantine is located in Appendix H.

- a. *Passive* monitoring: The case/contact will self-assess daily, complete the symptom log and notify OSDH or county health department staff if symptoms develop.
- b. *Active* monitoring: OSDH or county health department staff will check on the case/contact's health status at least once daily.

Contacts placed into quarantine will be evaluated to assess the need to release or change containment status:

- a. From quarantine to isolation, if the case definition is met; or
- b. Release from quarantine if the contact does not develop symptoms after 10 days

Social Distancing

Public gatherings can provide the right environment for disease transmission from one person to another. It may be necessary to close schools and childcare programs, cancel events, close buildings or restrict access to certain sites or buildings in order to limit exposure to influenza cases. There are two categories of social distancing: child social distancing and adult social distancing.

Child Social Distancing

Social distancing interventions for children include dismissal of students from classrooms and closure of childcare programs, as well as preventing transmission among children and teenagers through social distancing in the community. Childcare facilities and schools represent an important setting for sustaining person-to-person transmission.

School closings may be effective in decreasing the spread of influenza and may significantly decrease morbidity and mortality among children.

Interim recommendations from the HHS for pre-pandemic planning for child social distancing include a three-tiered strategy: 1) no dismissal of students from schools or closure of childcare facilities in a Category 1 pandemic, 2) short-term (up to 4 weeks) dismissal of students and closure of childcare facilities during a Category 2 or Category 3 pandemic and 3) prolonged (up to 12 weeks) dismissal of students and closure of childcare facilities during a severe influenza pandemic (Category 4 or Category 5). OSDH will use the latest epidemiologic data, including the observed severity of the event to determine whether child social distancing measures should be implemented as well as the need for short-term or prolonged implementation. OSDH will work with the Department of Education during pre-pandemic planning to develop methods for continuing essential nutrition programs (free/reduced breakfast and lunch programs) and education if child social distancing measures are implemented.

Adult Social Distancing

Social distancing measures for adults include provisions for both workplaces and the community and may play an important role in slowing or limiting community transmission. The goals of workplace measures are to reduce transmission within the workplace and thus into the community at large, to ensure a safe working environment and promote confidence in the workplace and to maintain business continuity, especially for critical infrastructure. Workplace measures such as encouragement of working from home and other alternatives to in-person meetings may be important in reducing social contacts and the accompanying increased risk of transmission. Similarly, modifications to work schedules, such as staggered shifts, may also reduce transmission risk. The success of these various measures will require the commitment of employers to providing options and making changes in work environments to reduce contacts while maintaining operations. OSDH will use the latest epidemiologic data, including the observed severity of the event to determine whether adult social distancing measures should be implemented as well as the duration of implementation. County health departments will work with businesses during pre-pandemic planning to develop methods for implementing adult social distancing measures while maintaining business continuity of operations.

Community Wide Quarantine

Community-wide quarantine is the most stringent and restrictive containment measure. It involves asking everyone to stay home and restrict travel into or out of an area, except by authorized persons such as public healthcare workers. The quarantine may be applicable to all members of a group of people or community to prevent the further spread of influenza. Cancellation or postponement of large gatherings, such as concerts or theatre showings, may reduce transmission risk. Modifications to mass transit policies to decrease passenger density may also reduce transmission risk. Similar to child distancing measures, OSDH will use the latest epidemiologic data, including the observed severity of the event to determine whether adult social distancing measures should be implemented, which measures to implement and the duration of implementation.

Management of Travel-Related Risk of Disease Transmission

Strategies for limiting travel-related exposure include travel health alert notices, isolation/quarantine of new arrivals and restriction or cancellation of nonessential travel. It will not be possible to identify all arriving or departing infected passengers because some persons infected with influenza will still be in the incubation period, be shedding virus asymptomatically or have mild symptoms. The federal government has primary responsibility for movement between states or across international borders. Novel influenza virus was added to the federal quarantinable list in April 2005. OSDH will follow travel-related strategies selected and implemented by federal authorities throughout a pandemic event.

Scaling Back Containment Measures

While premature removal of containment strategies can increase the risk of additional transmission, continuation of such measures must be balanced with individuals' needs for movement and available resources.

Decisions will be based on the latest epidemiologic, laboratory, clinical data and availability of public health and healthcare resources. Specific determinants that will be used to guide decision-making to scale back or discontinue community containment measures will be based on:

- a. Consistent decrease in the number of confirmed cases.
- b. Reduction in the number of probable and known cases.
- c. Verification that effective protective countermeasures are in place.

Factors for Home Quarantine and Isolation

A person's residence is generally the preferred setting for quarantine or isolation. An evaluation of the home/facility for its suitability is needed to ensure that the environment will be able to meet the individual's basic needs during quarantine or isolation. The evaluation may be performed on site by an OSDH or county health department official or designee.

Factors to be considered include:

- a. Basic utilities (water, electricity, garbage collection and heating or air-conditioning as appropriate)
- b. Basic supplies (clothing, food, hand-hygiene supplies, laundry services)
- c. Mechanism for addressing special needs (e.g., filling prescriptions)
- d. Mechanism for communication, including telephone (for monitoring by health staff, reporting of symptoms, gaining access to support services and communicating with family)

- e. Accessibility to supplies such as thermometers, fever logs, phone numbers for reporting symptoms or accessing services and emergency numbers
- f. Access to mental health and other psychological support services

Alternate care sites may be necessary in certain situations such as persons who do not have a home situation suitable for this purpose or those who require quarantine or isolation while away from their home (e.g. during travel). An evaluation of the facility for its suitability is needed before individuals are placed in quarantine to ensure that the environment will be able to meet the individual's basic needs. The evaluation will be performed on site by an OSDH or county health department official or designee. Additional considerations beyond those listed above include:

- a. Adequate rooms and bathrooms for each contact
- b. Delivery systems for food and other needs
- c. Staff to monitor contacts at least daily for fever and respiratory symptoms
- d. Transportation for medical evaluation for persons who develop symptoms
- e. Mechanisms for communication, including telephone (for monitoring by health staff, reporting symptoms, gaining access to support services and communicating with family)
- f. Adequate security for those in the facility
- g. Services for removal of waste – No special precautions for removal of waste are required as long as persons remain asymptomatic

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APPENDIX H

ASSESSMENT AND MONITORING FORMS FOR HOME QUARANTINE OR ISOLATION

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Mechanism for addressing special needs (filling prescriptions, transport of children for school/childcare programs, language, disabilities)?		
Sufficient medical supplies (gloves, surgical masks, hand-hygiene supplies and disinfectant)?		
Available household member/facility staff person to be patient's primary caregiver (isolation) and/or monitor contacts at least daily for fever and respiratory symptoms (quarantine)?		
Transportation for treatment/medical evaluation for persons whose symptoms worsen (isolation) or develop symptoms (quarantine)?		
Access to mental health and other psychological support services?		
Sign posted on the patient's door restricting access only to the caregiver/staff?		
Caregiver/staff instructed on the proper procedures for disposing of waste materials and laundering?		
Case(s) instructed to restrict their mobility and take precautions?		
Work/school arrangements in place?		
Banking and bill paying addressed?		

**Contact Daily Symptom Monitoring Log
Oklahoma State Department of Health**

Name of individual: _____

Telephone number: _____

Address: _____

Street City Zip code
County

Since you have been exposed to a novel strain of the influenza virus through either close contact to someone who is ill with influenza or had recent foreign travel, you must monitor your temperature and development of other symptoms each day. This must be done for 10 days following your exposure (date of last close contact with the ill person or date of return from travel). An individual from your county health department will provide you with the specific dates your symptoms must be monitored.

The attached Symptom Monitoring Log is to record your temperature daily and any respiratory symptoms should they occur. If you develop a fever (greater than 100 degrees Fahrenheit) or any respiratory symptoms, such as, cough or shortness of breath, please notify your primary healthcare provider, notify the county health department and place a mask on your face before leaving to seek medical care. You have been provided the Symptom Monitoring Log, the recommended infection control precautions for patients during an influenza pandemic and a supply of surgical masks.

County health department: _____

County health department contact person to report symptoms, should they occur:

Phone number: _____

Start date for quarantine/symptom monitoring: _____

End date for quarantine/symptom monitoring: _____

Comments: _____ (continued on back of page)

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APPENDIX I

ANTIVIRALS, VACCINES AND OTHER MEDICAL SUPPLIES

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PANDEMIC INFLUENZA PREPAREDNESS (Antivirals, Vaccines & Other Medical Supplies)

(This appendix is an excerpt from the Oklahoma Strategic National Stockpile Plan.)

Specific to influenza pandemic preparedness, the federal government has plans to procure antiviral drugs; personal protective equipment (PPE) including masks, respirators, face shields, gloves and gowns; intravenous antibiotics (to be used for secondary bacterial infections); ventilators; and syringes for storage in the Strategic National Stockpile (SNS). The Division of the Strategic National Stockpile (DSNS) is responsible for ensuring that these assets are delivered to the 62 Public Health Emergency Preparedness (PHEP) Project Areas during response to a pandemic influenza emergency. In the event an effective pandemic vaccine is developed, the DSNS would also use their distribution plans to distribute available vaccine to the PHEP Project Areas.

The Director of the Centers for Disease Control and Prevention (CDC) in consultation with the Secretary of HHS, or his/her designee, will determine when to activate the SNS to begin the distribution of critical medical material based on the World Health Organization (WHO) Pandemic Phase characterization and the severity of the disease. The decision will likely not occur until after the WHO declares a Phase 4 of an influenza pandemic when there are confirmed small clusters of limited human-to-human transmission of a novel type A influenza virus with epidemiologic evidence of sustained spread.

In addition to the federally stockpiled antiviral drugs and other assets purchased to combat an influenza pandemic, through the Health & Human Services (HHS) Public Health Preparedness Cooperative Agreement, the 62 PHEP Project Areas have the opportunity to purchase Tamiflu® and Relenza® at federally negotiated contract prices with a 25% federal subsidy. Oklahoma's state allocation of the federally subsidized antiviral drugs is 368,155 courses. On December 22, 2006, the Oklahoma State Department of Health (OSDH) submitted a chronological purchase plan for a total of 139,368 treatment courses (114,318 Tamiflu® and 25,050 Relenza®). This purchase plan is inclusive of orders placed in behalf of other preparedness partners, including Tulsa City-County Health Department, the Department of Corrections and five hospitals participating in the OSDH Hospital Package Plan. Shipment of the first order for the state antiviral stockpile is anticipated after June 1, 2007.

Warehousing Functions

The CDC requires states to have a plan for receiving SNS assets delivered for a pandemic along with plans for distribution, storage, security, monitoring, allocation and administration or dispensing of both federal SNS assets as well as state-owned assets purchased for a public health response to an influenza pandemic. Oklahoma will utilize the same receiving, staging and storing procedures used for mass prophylaxis discussed in previous chapters, as well as similar distribution plans and partners. The exception to this may be distribution of small supplies of antiviral medications targeted for use by employees in hospitals, other state agencies, or facilities deemed vital for community

infrastructure support. Those distribution plans are further detailed in the Oklahoma Pandemic Influenza Management Plan.

Receipt of Assets

Any SNS assets shipped to Oklahoma will be received at one of the pre-approved Receiving, Staging and Storing (RSS) warehouse sites. The designated warehouse will activate the ICS structure and a pharmacist or DEA licensed professional will be available onsite to sign for the medications and/or supplies. In the event one of the above is not available to sign for the assets, the Warehouse Site Commander may sign for the assets and the necessary paperwork will be filled out before the end of the event by a DEA licensed professional.

Storage

OSDH-owned assets will be stored at a confidential location that can later be mobilized using the SNS distribution plan, described below. Other assets purchased with federal funds such as Metropolitan Medical Response Systems, are stored at the same confidential location as OSDH-purchased assets and will be mobilized in the same fashion. SNS assets will be stored at a pre-approved RSS warehouse and shipped out to affected areas.

Hospitals opting to purchase federally subsidized antiviral medications through the Oklahoma State Department of Health (OSDH) will have the option of storing the medications at their facility as long as they meet storage and security requirements. A Memorandum of Understanding detailing the conditions of receipt, storage and use will be executed prior to delivery of antiviral purchases to hospital storage locations.

Security

Any time the RSS warehouse is activated, the Oklahoma Department of Public Safety and the Oklahoma Department of Emergency Management in conjunction with the Oklahoma State Emergency Operations Plan will coordinate security of the site. In addition to securing the warehouse, all antiviral medications and/or vaccines to be utilized and distributed during a pandemic influenza will have a security escort.

Distribution

The same distribution plan will be utilized for all SNS and state assets to be used in a public health emergency, with the possible exception of some targeted delivery of antiviral drugs. The Oklahoma Department of Emergency Management will coordinate other state and private agencies to deliver to one of the thirty-five (35) pre-designated warehouses across the state. Depending on location and number of actual cases identified in the state, delivery of supplies may be made directly to a hospital or treatment center based on severity of the event. The county health departments responsible for the receiving warehouses will activate local plans to distribute supplies in the area.

Dispensing

A Pandemic Influenza Committee will be convened to determine allocation of antiviral medications. This team will be convened during the pre-pandemic period to ensure the appropriate health facilities and institutions receive medications to achieve prioritized

usage based on CDC's and the WHO's recommendations at the time. It must be understood though, due to the expected limited availability of antiviral medications, prophylaxis of the general public may be outweighed by the needs for treatment of those infected and prophylaxis of healthcare workers and other prioritized groups. PPE will be utilized, as well as a public information campaign on proper universal procedures, to protect the public from the spread of disease. (More information on the allocation of antiviral medications can be found in the OSDH Pandemic Influenza Management Plan under Essential Element #4, Delivery of Antiviral Medications and under the Antiviral Distribution Plan.)

Given the uncertainties about antiviral drug use and supply, administration strategies must be flexible and will be readdressed as a pandemic unfolds. The convening Pandemic Influenza Committee will determine the appropriate treatment and prophylaxis regimens based on current event information. Any information regarding the recommended treatment and prophylaxis protocols will be disseminated to the appropriate treatment facilities and practitioners via Oklahoma's Health Alert Network (OK-HAN) messages in compliance with the Public Health Information Network (PHIN). Again, a public information campaign will be utilized to notify the public using the Pandemic Influenza Shelf Kit in the Office of Communications at the OSDH.

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APPENDIX J

ACUTE CARE HOSPITAL MEMORANDUM OF UNDERSTANDING

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MEMORANDUM OF UNDERSTANDING

BETWEEN THE OKLAHOMA STATE DEPARTMENT OF HEALTH AND ACUTE CARE HOSPITALS IN OKLAHOMA

Background

To mitigate the impact of an influenza pandemic, it will be essential to protect hospital capacity to provide essential healthcare services. Antiviral medications will be distributed as a pandemic countermeasure with the intent to reduce the duration of illness and deaths resulting from this pandemic. Influenza antivirals will be positioned in specific hospitals under the direction of the State Health Officer, as early as possible, but no later than the World Health Organization's (WHO) categorization of Pandemic Phase 5.

Hospitals form a critical societal infrastructure, and it is the intent of the Oklahoma State Department of Health (OSDH) to provide antiviral medication to hospitals, so they may in turn provide prophylaxis to front line healthcare staff and family members, thus retaining enough personnel to remain operational and provide surge capacity. Antiviral medications should also be used to treat acutely ill (less than 48 hours from symptom onset) patients at risk of serious complications from influenza at the attending physician's discretion.

Purpose

This Memorandum of Understanding (MOU) outlines the responsibilities of each of the identified hospitals with regard to receipt, storage, distribution, dispensing of antiviral medications and submission of required data to the OSDH for tracking purposes.

Scope of Work

The hospital will:

1. Provide courier transportation with recommended security to the OSDH's designated storage site to pick up antivirals. The hospital will fax hospital ID and driver license of the person(s) who will pick up the antivirals as well as provide an accurate estimated time of arrival.
2. Provide secure storage for the received antivirals at room temperature (59°F to 86°F) and maintain under appropriate climatic conditions as defined in the package insert.
3. Provide specific epidemiological and tracking information to the OSDH Acute Disease Service.

Epidemiologic Monitoring and Reporting

Data regarding moderate to severe adverse reactions experienced by persons receiving antiviral drugs for treatment or prophylaxis of pandemic influenza will be required to be submitted to the Acute Disease Service of the Oklahoma State Department of Health within 48 hours of occurrence. If Internet access is available, hospitals will be requested to submit this information into the Public Health Information and Disease Detection in Oklahoma (PHIDDO) system. Fields of information that will be required to perform epidemiologic monitoring are listed below.

If Internet service is unavailable, the information should be faxed to (405) 271-6680.

Any concerns about failing efficacy of the antiviral medications, should be promptly reported to the Office of the State Epidemiologist by calling (405) 271-4060 or (800) 234-5963.

Patient Last Name	
Patient First Name	
Date of Birth	
Sex	
Parent or Guardian name if minor child	
Mailing Address	
City, State, Zip code	
Home phone #	
Mobile phone #	
Prescribed antiviral drug type & dosage	
Disbursement date	
Lot number or Drug Tracking ID #	
Description of symptoms or condition	
Onset of symptoms/condition	
Relevant laboratory findings	

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APPENDIX K

**RECOMMENDATIONS FOR
IDENTIFYING ESSENTIAL PERSONNEL**

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Recommendations for Identifying Essential Personnel

In the event of a catastrophic health emergency related to an outbreak of a novel and severe type of influenza, the Oklahoma State Department of Health (OSDH) will be responsible for distributing antiviral medications to county health departments for further distribution within their county and municipalities to maintain essential community services and infrastructure. The medications will be prescribed to identified workers to help prevent them from becoming ill during the influenza pandemic. Prophylactic medications may also be dispensed to workers' family members to ensure their ability to stay in the workforce and mount an effective community pandemic response.

These essential personnel are employed in key community services; therefore, the following list is provided to assist county health departments and local emergency managers in compiling their individual essential personnel listing. Once developed, the essential personnel listing should be reviewed and updated on a regular and ongoing basis.

Each county will make an individual determination on what services and which personnel are essential. The groups below are simply a guide in developing the list.

- a. Fire-fighters (paid and volunteer)
- b. Police (city, county, sheriff)
- c. National Guard
- d. Key emergency response decision makers (e.g. elected officials, essential government workers and disaster services personnel)
- e. Utility workers (water, waste water, gas, electricity and essential communications systems – phone, Internet)
- f. Local media
- g. Funeral services/mortuary personnel
- h. People who work with institutionalized populations (e.g. corrections – city, county jails)
- i. Persons who are employed in public transportation and transportation of essential goods (such as food, energy, medical supplies)
- j. Bank personnel
- k. Animal Services (veterinarians and key staff)

- l. Local Medical Services (physicians, pharmacists, EMS, home healthcare, long term care)
- m. Waste Disposal
- n. Retail (grocers)
- o. Key industries personnel
- p. Humanitarian Aid Services (Red Cross, food banks)

Each county will need to provide the number of essential personnel within each category. Due to a limited supply of antiviral drugs, it is requested that essential personnel within a category also be tiered according to a sub-priority grouping based on perceived needs. The exact numbers of courses of antiviral medications that will be allocated to each county will not be provided prior to a national pandemic declaration.

APPENDIX L

POSSIBLE COMMUNITY CONTAINMENT MEASURES

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Possible Community Containment Measures

(based on level of novel influenza activity and risk of human transmission)

Level of Influenza Activity	Response	Rationale
Federal Governmental Response Stage 0: New domestic animal outbreak in at-risk country. <i>World Health Organization Pandemic Phases 1-2</i>	Preparedness planning	Use recommended response actions for interpandemic influenza prevention and control.
Federal Governmental Response Stages 1-2: Suspected/confirmed human outbreaks overseas. <i>World Health Organization Pandemic Phases 3-5</i>	Evaluate and manage ill travelers from affected regions	Response to suspected or confirmed cases in Oklahoma among travelers to affected regions will reduce the risk of transmission to contacts.
	Isolation of persons with suspected novel influenza virus	Separation or restriction of movement or activities of an ill person with infectious disease will prevent transmission to others.
	Consider quarantine of close contacts	Although individual containment measures may have limited impact in preventing the transmission of pandemic influenza (given the likely characteristics of a novel influenza virus), they may have great effectiveness with a less efficiently transmitted virus and may slow disease spread and buy time for vaccine development.
Federal Governmental Response Stages 3-5: Human cases in North	Isolation of persons with suspected novel influenza virus	Same as above.

Level of Influenza Activity	Response	Rationale
	Consider quarantine of close contacts	Same as above.
	Managing small clusters of human infection with novel influenza virus	Targeted antiviral prophylaxis and early detection of new cases may slow disease spread.
	Focused measures to increase social distance; consider community-based measures	Applicable in groups or settings where transmission is believed to have occurred, where the linkages between cases are unclear at the time of evaluation and where restrictions placed only on persons confirmed of exposure are considered insufficient to prevent further transmission. Applied broadly, may reduce the requirement for urgent evaluation of large numbers of persons without explicit activity restriction (quarantine).
	Community-level measures to increase social distance; consider coordinated community and business closures and community wide quarantine	When disease transmission is occurring in communities around the United States, individual quarantine is much less likely to have an impact and likely would not be feasible to implement. Rather, community measures and emphasizing what individuals can do to reduce their risk of infection may be more effective disease control tools.

Level of Influenza Activity	Response	Rationale
	Activity restrictions for persons with fever	Patient isolation and contact tracing and quarantine will likely cease, as these measures may no longer be feasible or useful. Persons with fever and respiratory symptoms and their contacts will be asked to stay at home and restrict their activities. The duration of the activity restrictions for persons with fever will be based on the infectious period associated with the specific novel influenza virus in question.
Federal Governmental Response Stages 6: Recovery and preparation for subsequent waves	Active monitoring in high risk populations; continue for 2-3 incubation periods after control or elimination of transmission	

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APPENDIX M

TRANSMISSION IN HEALTHCARE SETTINGS

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TRANSMISSION IN HEALTHCARE SETTINGS

Control of transmission in healthcare facilities

Outbreaks of influenza have been prevented or controlled through a set of well established strategies that include vaccination of patients and healthcare personnel; early detection of influenza cases in a facility; use of antivirals to treat ill persons and, if recommended, as prophylaxis or isolation of infectious patients in private rooms or cohort units. Other strategies include good hand hygiene, Respiratory Hygiene/Cough Etiquette and administrative measures, such as restricting visitors, educating patients and staff and cohorting healthcare workers assigned to an outbreak unit. During an influenza pandemic, surgical masks and N-95 respirators along with other forms of personal protective equipment (e.g., gloves, gowns and eye protection) should be used by healthcare personnel in healthcare settings in conjunction with Standard and Droplet Precautions, respiratory hygiene, cough etiquette, vaccination and early diagnosis and treatment. Used together, these measures have been successful in controlling outbreaks of seasonal influenza in healthcare settings; however, the relative contributions of each of the interventions listed above remain unknown and their specific impact during a pandemic is difficult to predict. These are the primary infection prevention and control measures recommended in this plan. They will be updated, as necessary, based on the observed characteristics of the pandemic influenza virus.

Pathogenesis of influenza and implications for infection prevention and control

Human influenza is a disease of the respiratory tract. Influenza virus infects respiratory epithelial cells via receptors found principally in non-ciliated cells of the upper respiratory tract; infection can also occur in the lower respiratory tract. There is no natural or experimental evidence that human seasonal influenza virus infection of the gastrointestinal tract can occur. While conjunctivitis is a common manifestation of systemic influenza infection, the ocular infection does not appear to be a primary route for transmission of human influenza viruses although data are very limited. Nonetheless, it is prudent to prevent exposure of the eyes as well as the mucous membranes of the respiratory tract to possible infectious material (e.g., as may occur when healthcare workers perform splash-generating procedures).

Droplet transmission

http://www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html

Droplet transmission involves contact of the conjunctivae or the mucous membranes of the nose or mouth of a susceptible person with large-particle droplets containing microorganisms generated from an infected person during coughing, sneezing or talking. Transmission via large-particle droplets requires close contact between source and recipient persons because these larger droplets do not remain suspended in the air and generally travel only short distances. Three feet has often been used by infection prevention and control professionals as a guide for “short distance” and is based on

studies of respiratory infections; however, for practical purposes, this distance may range from three to six feet. Because droplets do not remain suspended in the air, special air handling and ventilation are not required to prevent droplet transmission.

Based on epidemiologic patterns of disease transmission, large droplet transmission via coughing and sneezing or talking has traditionally been considered a major route of influenza transmission.

Airborne Transmission

http://www.cdc.gov/ncidod/dhqp/gl_isolation_airborne.html

Airborne transmission occurs by dissemination of small particles or droplet nuclei through the air. Some organisms (e.g., *Mycobacterium tuberculosis*, measles virus and varicella [chickenpox] virus) can remain infectious while dispersed over long distances by air currents, causing infection in susceptible individuals who have not had face-to-face contact (or been in the same room) with the infectious individual. Special air handling and ventilation systems (e.g., negative-pressure rooms or airborne infection isolation rooms [AIIR]) are used in healthcare settings to assist in preventing spread of agents that may be dispersed over long distances.

In contrast to tuberculosis, measles and varicella, the pattern of disease spread for seasonal influenza does not suggest transmission across long distances (e.g., through ventilation systems); therefore, negative pressure rooms are not needed for patients with seasonal influenza. However, localized airborne transmission may occur over short distances (i.e., three to six feet) via droplet nuclei or particles that are small enough to be inhaled. The relative contribution of short-range airborne transmission to influenza outbreaks is unknown.

Several often-cited papers raise concern about short-range aerosol transmission as a possible route of spread for influenza. These include laboratory studies in animal observational studies during the 1957-1958 influenza pandemic and an epidemiologic study of transmission on an airplane with an inoperative ventilation system. An experimental study in which the infectious dose of influenza virus was found to be as much as 100-fold lower for persons infected with small aerosols than with nasal drops has further raised this concern. Although data are limited, the possibility remains that short-range aerosol transmission is a route of influenza transmission in humans and requires further study.

It is likely that some aerosol-generating medical procedures (e.g., endotracheal intubation, open suctioning, nebulizer treatment, bronchoscopy) could increase the potential for generation of small aerosols in the immediate vicinity of the patient. Although this mode of transmission has not been evaluated for influenza, given what is known about these procedures, additional precautions for healthcare personnel who perform aerosol-generating procedures on influenza patients are warranted.

Contact transmission (Direct and via fomites)

http://www.cdc.gov/ncidod/dhqp/gl_isolation_contact.html

Contact transmission of influenza may occur through direct contact with contaminated hands, skin or fomites followed by autoinoculation of the respiratory mucosa. Influenza transmission via contaminated hands and fomites has been suggested as a contributing factor in some studies. There are insufficient data to determine the proportion of influenza transmission that is attributable to direct or indirect contact. However, it is prudent to reinforce recommendations for thorough and frequent hand washing, which is known to reduce the likelihood of contamination of the environment and to reduce transmission of respiratory infections. Surgical mask or respirator use may provide an additional benefit by discouraging facial contact and subsequent autoinoculation.

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APPENDIX N

MANAGEMENT OF INFECTIOUS PATIENTS

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MANAGEMENT OF INFECTIOUS PATIENTS

The U.S. Department of Health and Human Service (HHS) and the Oklahoma State Department of Health (OSDH) recommend Respiratory Hygiene/Cough Etiquette:

Respiratory Hygiene/Cough Etiquette has been promoted as a strategy to contain respiratory viruses at the source and to limit their spread in areas where infectious patients might be awaiting medical care (e.g., physician offices, emergency departments). The impact of covering sneezes and coughs and/or placing a mask on a coughing patient on the containment of respiratory secretions or on the transmission of respiratory infections has not been systematically studied. In theory, however, any measure that limits the dispersal of respiratory droplets should reduce the opportunity for transmission. Masking may be difficult in some settings, e.g., pediatrics, in which case the emphasis will be on cough. The elements of Respiratory Hygiene/Cough Etiquette include:

- a. Education of healthcare facility staff, patients and visitors on the importance of containing respiratory secretions to help prevent the transmission of influenza and other respiratory viruses;
- b. Posting signs in languages appropriate to the populations served with instructions to patients and accompanying family members or friends to immediately report symptoms of a respiratory infection as directed;
- c. Implementing source control measures (e.g., covering the mouth/nose with a tissue when coughing and immediately disposing of used tissues; placing masks on the coughing person when they can be tolerated and are appropriate);
- d. Conducting hand hygiene after contact with respiratory secretions or items contaminated with respiratory secretions; and
- e. Providing adequate amounts and readily accessible resources needed to accomplish these instructions (surgical masks, tissues, trash cans, nearby sinks with soap and paper towels and alcohol-based hand gel);
- f. Separating persons with respiratory infections in common waiting areas when possible, ideally >3 feet.

The OSDH recommends droplet precautions plus N-95 respirators for personnel in healthcare settings plus isolation or cohorting of patients.

- a. Patients with known or suspected pandemic influenza should be placed on droplet precautions for a minimum of 5 days from the onset of symptoms. Because immuno-compromised patients may shed virus for longer periods, they may be placed on droplet precautions for the duration of their illness. The placement of patients will vary depending on the healthcare setting (see setting-specific guidance). Negative pressure isolation is not required for routine patient care of

individuals with pandemic influenza. If possible, airborne infection isolation rooms should be used when performing high-risk aerosol-generating procedures. If work flow, timing, resources, availability or other factors prevent the use of airborne infection isolation rooms for these procedures, it is prudent to conduct these activities in a private room (with the door closed) or other enclosed area, if possible, and to limit personnel in the room to the minimum number necessary to perform the procedure properly; and

- b. If the pandemic virus is associated with diarrhea, contact precautions (i.e., gowns and gloves for all patient contact) should be added. Centers for Disease Control and Prevention (CDC) will update these recommendations if changes occur in the anticipated pattern of transmission (<http://www.cdc.gov/flu>).

APPENDIX O

OCCUPATIONAL HEALTH ISSUES

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Occupational Health Issues

Healthcare personnel are at risk for pandemic influenza through community and healthcare-related exposures. Once pandemic influenza has reached a community, healthcare facilities must implement systems to monitor for illness in the facility workforce and manage those who are symptomatic or ill such as:

- a. Implementing a system to educate personnel about occupational health issues related to pandemic influenza. Issues should include recognition of symptoms in themselves or others, transmission, appropriate use of personal protective equipment and environmental cleaning.
- b. Implementing screening of all personnel for influenza-like symptoms before they come on duty. Symptomatic personnel should be sent home until they are physically ready to return to duty.
- c. Prioritizing healthcare personnel who have recovered from pandemic influenza and hence should have developed antibodies against future infection with the same virus and to provide care for patients with active pandemic influenza and its complications. These workers would also be well suited to care for patients who are at risk for serious complications from influenza (e.g., transplant patients and neonates).
- d. Informing personnel who are at high risk for complications of pandemic influenza (e.g., pregnant women, immuno-compromised persons) about their medical risk, and
- e. Offering an alternate work assignment, away from influenza patient care or considering employees for administrative leave until the influenza pandemic has abated in the community.

Reducing Exposure of Persons at High Risk for Complications of Influenza

Persons who are well, but at high risk for influenza or its complications (e.g., persons with underlying diseases such as those having chronic disorders of the pulmonary or cardiovascular system, including asthma), should be instructed to avoid unnecessary contact with healthcare facilities caring for pandemic influenza patients (i.e., do not visit patients, postpone nonessential medical care, etc.).

Healthcare Setting-Specific Guidance

All healthcare facilities should follow the infection prevention and control guidance in the Health and Human Services' Pandemic Influenza Plan, S4-IVA-E (see <http://www.hhs.gov/pandemicflu/plan/sup4.html>). The following guidance is intended to address setting-specific infection prevention and control issues that should also be considered.

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APPENDIX P

ACUTE CARE HOSPITAL RECOMMENDATIONS

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ACUTE CARE HOSPITAL RECOMMENDATIONS

Hospitals will play a crucial role in the event of an influenza pandemic. The OSDH recommends that hospitals develop policies and procedures that address detection and limitation of persons entering the facility who may have pandemic influenza. Hospitals should address the following:

1. Informing Visitors and Incoming Patients
 - a. Implement posting of visual alerts (in appropriate languages) at the entrance to hospital outpatient facilities (e.g., emergency departments, outpatient clinics) instructing persons with respiratory symptoms (e.g., patients, persons who accompany them) to:
 - i. Inform reception and healthcare personnel when they first register for care.
 - ii. Practice Respiratory Hygiene/Cough Etiquette:

Sample visual alerts are available on the CDC SARS Website at:
<http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>.

- b. Perform triage of patients calling for medical appointments for influenza symptoms:
 - i. Discourage unnecessary visits to medical facilities.
 - ii. Instruct symptomatic patients on infection prevention and control measures and how to limit transmission in the home and when traveling to necessary medical appointments.
 - iii. As the scope of the pandemic escalates locally, consider setting up a separate triage area for persons presenting with symptoms of respiratory infection. Because not every patient presenting with symptoms will have pandemic influenza, infection prevention and control measures will be important in preventing further spread.
 - c. Designate a “triage officer.” During the peak of a pandemic, emergency departments and outpatient offices may be overwhelmed with patients seeking care. This position may be useful for managing patient flow, including deferral of patients who do not require emergency care;
 - d. Designate separate waiting areas for patients with influenza-like symptoms. If this is not feasible, the waiting area should be set up to enable patients with respiratory symptoms to sit as far away as possible (at least 3 feet) from other patients;

- e. Recommend “source control” measures to limit dissemination of influenza virus from respiratory secretions; and
- f. Recommend the posting of signs that promote Respiratory Hygiene/Cough Etiquette in common areas (e.g., elevators, waiting areas, cafeterias, lavatories) where they can serve as reminders to all persons in the healthcare facility. Signs should instruct persons to:
 - i. Cover the nose/mouth when coughing or sneezing.
 - ii. Use tissues to contain respiratory secretions.
 - iii. Dispose of tissues in the nearest waste receptacle after use.
 - iv. Perform hand hygiene after contact with respiratory secretions.

Samples of visual alerts are available on CDC’s Website: <http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>.

- g. Facilitate adherence to Respiratory Hygiene/Cough Etiquette by ensuring the availability of materials in waiting areas for patients and visitors.
 - i. Provide tissues and no-touch receptacles (e.g., waste containers with pedal-operated lid or uncovered waste container) for used tissue disposal.
 - ii. Provide conveniently located dispensers of alcohol-based hand rub.
 - iii. Provide soap and disposable towels for hand washing, where sinks are available for personal usage.
- h. Promote the use of masks and spatial separation by persons with symptoms of influenza.
 - i. Offer and encourage the use of either procedure masks (i.e., with ear loops) or surgical masks (i.e., with ties or elastic) by symptomatic persons to limit dispersal of respiratory droplets.
 - ii. Place coughing persons as far away as possible (at least 3 feet) from other persons in common waiting areas.

2. Hospitalizing Pandemic Influenza Patients

- a. Patient placement:

- i. Limit admission of influenza patients to those with severe complications of influenza who cannot be cared for outside the hospital setting.
- ii. Admit patients to either a single-patient room or an area designated for cohorting of patients with influenza.

b. Cohorting:

- i. Designated units or areas of a facility should be used for cohorting patients with pandemic influenza. During a pandemic, other respiratory viruses (e.g., non-pandemic influenza, respiratory syncytial virus, para-influenza virus) may be circulating concurrently in a community. Therefore, to prevent cross-transmission of respiratory viruses, whenever possible assign only patients with confirmed pandemic influenza to the same room. At the height of a pandemic, laboratory testing to confirm pandemic influenza is likely to be limited, in which case cohorting should be based on having symptoms consistent with pandemic influenza.
- ii. Personnel (clinical and non-clinical) assigned to cohorted patient care units for pandemic influenza patients should not “float” or otherwise be assigned to other patient care areas. The number of personnel entering the cohorted area should be limited to those necessary for patient care and support.
- iii. Personnel assigned to cohorted patient care units should be aware that patients with pandemic influenza may be concurrently infected or colonized with other pathogenic organisms (e.g., *Staphylococcus aureus*, *Clostridium difficile*) and should adhere to infection prevention and control practices (e.g., hand hygiene, changing gloves between patient contact) used routinely and as part of standard precautions, to prevent transmission.
- iv. Because of the high patient volume anticipated during a pandemic, cohorting should be implemented early in the course of a local outbreak.

c. Patient transport:

- i. Limit patient movement and transport outside the isolation area to medically necessary purposes.
- ii. Consider having portable x-ray equipment available in areas designated for cohorting influenza patients.

iii. If transport or movement is necessary, ensure that the patient wears a surgical or procedure mask. If a mask cannot be tolerated (e.g., due to the patient's age or deteriorating respiratory status), apply the most practical measures to contain respiratory secretions. Patients should perform hand hygiene before leaving the room.

d. Visitors:

- i. Screen visitors for signs and symptoms of influenza before entry into the facility and exclude persons who are symptomatic.
- ii. Family members who accompany patients with influenza-like illness to the hospital are assumed to have been exposed to influenza and should wear masks.
- iii. Limit visitors to persons who are necessary for the patient's emotional well-being and care.
- iv. Instruct visitors to wear surgical or procedure masks while in the patient's room.
- v. Instruct visitors on hand-hygiene practices.
- vi. Provide family members information for receiving mental health support.

3. Controlling Pandemic Influenza Transmission

- a. If **limited transmission** is detected (e.g., has occurred on one or two patient care units), appropriate control measures should be implemented. These may include:
 - i. Cohorting of patients and staff on affected units;
 - ii. Restriction of new admissions (except for other pandemic influenza patients) to the affected unit(s); and
 - iii. Restriction of visitors to the affected unit(s) to those who are essential for patient care and support.
- b. If **widespread transmission** occurs, controls may need to be implemented hospital wide and might include:

- i. Restricting all nonessential persons; and
- ii. Stopping admissions not related to pandemic influenza and stopping elective surgeries.

Once patients with pandemic influenza are admitted to the hospital, surveillance should be heightened for evidence of transmission to other patients and healthcare personnel. (Once pandemic influenza is firmly established in a community this may not be feasible or necessary).

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APPENDIX Q

LONG TERM CARE AND OTHER RESIDENTIAL FACILITY RECOMMENDATIONS

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Long Term Care and Other Residential Facility Recommendations

Nursing homes and other residential facilities - Residents of nursing homes and other residential facilities will be at particular risk for transmission of pandemic influenza and disease complications. Pandemic influenza can be introduced through facility personnel and visitors; once a pandemic influenza virus enters such facilities, controlling its spread is problematic. Therefore, as soon as pandemic influenza has been detected in the region, nursing homes and other residential facilities should implement aggressive measures to prevent introduction of the virus.

1. **Prevention or delay** of pandemic influenza virus entry into the facility
 - a. Control of **visitors**:
 - i. Post visual alerts (in appropriate languages) at the entrance to the facility restricting entry by persons who have been exposed to or have symptoms of pandemic influenza.
 - ii. Enforce visitor restrictions by assigning personnel to verbally and visually screen visitors for respiratory symptoms at points of entry to the facility.
 - iii. Provide a telephone number on the visual alerts where persons can call for information on measures used to prevent the introduction of pandemic influenza.
 - b. Control of **personnel**:
 - i. Implement a system to screen all personnel for influenza-like symptoms before they come on duty.
 - ii. Send symptomatic personnel home until they are physically able to return to duty.
2. **Monitoring** patients for pandemic influenza and instituting appropriate control measures
 - a. Early in the progress of a pandemic in the region, increase resident surveillance for influenza-like symptoms. Notify state or county health department officials if a case(s) is suspected.
 - b. Implement droplet precautions if pandemic influenza symptoms are apparent, for the resident and roommates, pending confirmation of pandemic influenza virus infection. Patients and roommates should not be separated or moved out of their rooms unless medically necessary. Once a patient has been diagnosed with pandemic influenza, roommates should be treated as exposed cohorts.

- c. Cohort residents and staff on units with known or suspected cases of pandemic influenza.
- d. Limit movement within the facility (e.g., temporarily close the dining room and serve meals on nursing units, cancel social and recreational activities).

APPENDIX R

**EMERGENCY MEDICAL SERVICES
RECOMMENDATIONS**

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EMERGENCY MEDICAL SERVICES RECOMMENDATIONS

Pre-hospital care (emergency medical services) - Patients with severe pandemic influenza or disease complications are likely to require emergency transport to the hospital. The following information is designed to protect emergency medical service personnel during transport:

- a. Screen patients requiring emergency transport for symptoms of influenza;
- b. Follow standard and droplet precautions when transporting symptomatic patients;
- c. Consider routine use of N-95 respirators or surgical or procedure masks at a minimum for all patient transport when pandemic influenza is in the community;
- d. Place a procedure or surgical mask on the patient if possible, to contain droplets expelled during coughing. If this is not possible (i.e., would further compromise respiratory status, difficult for the patient to wear), have the patient cover the mouth/nose with tissue when coughing or use the most practical alternative to contain respiratory secretions;
- e. Use a non-re-breather facemask for oxygen delivery/support during transport. If needed, positive-pressure ventilation should be performed using a resuscitation bag-valve mask;
- f. Avoid aerosol-generating procedures (e.g., mechanical ventilation) during pre-hospital care, unless medically necessary to support life;
- g. Optimize the vehicle's ventilation to increase the volume of air exchange during transport. When possible, use vehicles that have separate driver and patient compartments that can provide separate ventilation to each area;
- h. Notify the receiving facility that a patient with possible pandemic influenza is being transported; and
- i. Follow standard operating procedures for routine cleaning of the emergency vehicle and reusable patient care equipment.

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APPENDIX S

HOME HEALTHCARE SETTING RECOMMENDATIONS

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HOME HEALTHCARE SETTING RECOMMENDATIONS

Home healthcare services –

Home healthcare includes health and rehabilitative services performed in the home by providers including home health agencies, hospices, durable medical equipment providers, home infusion therapy services and personal care and support services staff. The scope of services ranges from assistance with activities of daily living and physical and occupational therapy to wound care, infusion therapy and chronic ambulatory peritoneal dialysis. Communication between home healthcare providers and patients or their family members is essential for ensuring that these personnel are appropriately protected.

- a. When pandemic influenza is in the community, home health agencies should consider contacting patients before the home visit to determine whether persons in the household have an influenza-like illness.
- b. If patients with pandemic influenza are in the home, consider:
 - i. Postponing nonessential services.
 - ii. Assigning providers who are not at increased risk for complications of pandemic influenza to care for these patients.
 - iii. Following the recommendations for standard and droplet precautions if home healthcare providers must enter homes where there is a person with influenza-like illness. Professional judgment should be used in determining whether to don an N-95 respirator or a surgical/procedure mask upon entry into the home or only for patient interactions. Factors to consider include the possibility that others in the household may be infectious and the extent to which the patient is ambulating within the home.

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APPENDIX T

**OUTPATIENT AND AMBULATORY SETTINGS
RECOMMENDATIONS**

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OUTPATIENT AND AMBULATORY SETTINGS RECOMMENDATIONS

Outpatient Medical Offices

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

1. Detect patients with possible pandemic influenza:
 - a. Post visual alerts (in appropriate languages) at the entrance to outpatient offices instructing persons with respiratory symptoms (e.g., patients, persons who accompany them) to:
 - i. Inform reception and healthcare personnel when they first register for care and
 - ii. Practice Respiratory Hygiene/Cough Etiquette.

Samples of visual alerts may be found on the CDC seasonal flu Website:
<http://www.cdc.gov/flu/professionals/infectioncontrol/resphygiene.htm>

- b. Triage patients calling for medical appointments for influenza symptoms:
2. Discourage unnecessary visits to medical facilities.
3. Instruct symptomatic patients about infection prevention and control measures to limit transmission in the home and when traveling to necessary medical appointments.
4. Implement “source control” measures:
 - a. Post signs that promote cough etiquette in common areas (e.g., elevators, waiting areas, cafeterias, lavatories) where they can serve as reminders to all persons in the healthcare facility. Signs should instruct persons to:
 - i. Cover the nose/mouth when coughing or sneezing.
 - ii. Use tissues to contain respiratory secretions.
 - iii. Dispose of tissues in the nearest waste receptacle after use.
 - iv. Perform hand hygiene after contact with respiratory secretions.

- b. Facilitate adherence to Respiratory Hygiene/Cough Etiquette. Ensure the availability of materials in waiting areas for patients and visitors.
 - c. Provide tissues and no-touch receptacles (e.g., waste containers with pedal-operated lid or uncovered waste container) for used tissue disposal.
 - d. Provide conveniently located dispensers of alcohol-based hand rub.
 - e. Provide soap and disposable towels for hand washing where sinks are available.
5. Promote the use of procedure or surgical masks and spatial separation by persons with symptoms of influenza.
- a. Offer and encourage the use of either procedure masks (i.e., with ear loops) or surgical masks (i.e., with ties or elastic) by symptomatic persons to limit dispersal of respiratory droplets.
 - b. Seat coughing persons as far away as possible (at least 3 feet) from other persons in common waiting areas.
6. Use patient placement strategies:
- a. Designate separate waiting areas, where possible, for patients with symptoms of pandemic influenza. Place signs indicating the separate waiting areas.
 - b. Place symptomatic patients in an evaluation room as soon as possible to limit their time in common waiting areas.

Other Ambulatory Settings

A wide variety of ambulatory settings provide chronic (e.g., hemodialysis units) and episodic (e.g., freestanding surgery centers, dental offices) healthcare services. When pandemic influenza is in the region, these facilities should implement control measures similar to those recommended for outpatient physician offices.

1. Utilize other infection prevention and control strategies such as:
 - a. Screening patients for influenza-like illness by phone or before coming into the facility and rescheduling appointments for those whose care is non-emergent; and
 - b. Canceling all non-emergency services when there is pandemic influenza in the community.

APPENDIX U

RECOMMENDATIONS FOR CARE OF PANDEMIC INFLUENZA PATIENTS IN HOME AND ALTERNATE CARE SITES

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RECOMMENDATIONS FOR CARE OF PANDEMIC INFLUENZA PATIENTS IN HOME AND ALTERNATE CARE SITES

1. Care of pandemic influenza patients in the home Most patients with pandemic influenza will be able to remain at home during the course of their illness and can be cared for by other family members or others who live in the household. Anyone residing in a household with an influenza patient during the incubation period and illness is at risk for developing influenza. A key objective in this setting is to limit transmission of pandemic influenza within and outside the home. When a household member provides care, basic infection prevention and control precautions should be emphasized (e.g., segregating the ill patient, hand hygiene, Respiratory Hygiene/Cough Etiquette and environmental cleaning). Infection within the household may be minimized if a primary caregiver is designated, ideally someone who does not have an underlying condition that places them at increased risk of severe influenza disease. Although no studies have assessed the use of masks at home to decrease the spread of infection, use of surgical or procedure masks by the patient and/or caregiver during interactions may be of benefit.

a. Management of influenza patients in the home:

- i. Patients with influenza should be physically separated from non-ill persons living in the home as much as possible; and
- ii. Patients should not leave the home during the period when they are most likely to be infectious to others (i.e., 5 days after onset of symptoms). When movement outside the home is necessary (e.g., for medical care), the patient should follow Respiratory Hygiene/Cough Etiquette (i.e., use a tissue to cover the mouth and nose when coughing and sneezing, dispose of tissue immediately), perform hand hygiene and wear procedure or surgical masks if available.

b. Management of other persons in the home:

- i. Persons who have not been exposed to pandemic influenza and who are not essential for patient care or support should not enter the home while persons are actively ill with pandemic influenza;
- ii. Persons unexposed who must enter the home should avoid close contact (within 3 feet) with the patient and perform appropriate hand hygiene during and when ending the visit;
- iii. Persons living in the home with the pandemic influenza patient should limit contact with the patient to the extent possible; consider designating one person as the primary care provider; and

- iv. Household members should monitor closely for the development of influenza symptoms and contact a health department hotline or medical care provider if symptoms occur.
- c. Infection prevention and control measures in the home:
- i. All persons in the household should carefully follow recommendations for hand hygiene (i.e., hand-washing with soap and water or use of an alcohol-based hand rub) after contact with an influenza patient, the environment in which care is provided or any items potentially contaminated by the patient's respiratory secretions;
 - ii. Although no studies have assessed the use of masks at home to decrease the spread of infection, use of surgical or procedure masks by the patient and/or caregiver during interactions may be of benefit. The wearing of gloves and gowns is not recommended for household members providing care in the home;
 - iii. Soiled dishes and eating utensils should be washed either in a dishwasher or by hand with warm water and soap. Separation of eating utensils for use by a patient with influenza is not necessary;
 - iv. Laundry can be washed in a standard washing machine with warm or cold water and detergent. It is not necessary to separate soiled linen and laundry used by a patient with influenza from other household laundry. Care should be used when handling soiled laundry (i.e., avoid "hugging" the laundry) to avoid contamination. Hand hygiene should be performed after handling soiled laundry;
 - v. Tissues used by the ill patient should be placed in a bag immediately after use and disposed with other household waste. Consider placing a bag for this purpose in a convenient location such as at the bedside; and
 - vi. Normal cleaning of environmental surfaces in the home should be followed.
2. **Care of pandemic influenza patients at alternate care sites** - If an influenza pandemic results in severe illness that overwhelms the capacity of existing healthcare resources, it may become necessary to provide care at alternate care sites (e.g., schools, auditoriums, conference centers, hotels). Existing "all-hazard" plans have identified designated sites for this purpose in each community. The same principles of infection prevention and control apply in these settings as in other healthcare settings. Careful planning is necessary to ensure that resources are available and procedures are in place to adhere to the key principles of infection prevention and control.

APPENDIX V

RECOMMENDATIONS FOR INFECTION PREVENTION AND CONTROL IN SCHOOLS, WORKPLACES AND COMMUNITY SETTINGS

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RECOMMENDATIONS FOR INFECTION PREVENTION AND CONTROL IN SCHOOLS, WORKPLACES AND COMMUNITY SETTINGS

1. In schools and workplaces, infection prevention and control for pandemic influenza should focus on:
 - a. Excluding sick students, faculty and workers while they are infectious;
 - b. Promoting Respiratory Hygiene/Cough Etiquette and hand hygiene as for any respiratory infection. The benefit of wearing masks in these settings has not been established; and
 - c. Ensuring adequate materials for Respiratory Hygiene/Cough Etiquette (i.e., tissues and receptacles for their disposal) and hand hygiene (i.e., alcohol based hand gel) are available. Educational messages and infection prevention and control guidance for pandemic influenza are available for distribution. CDC will develop educational materials appropriate to various audiences.

2. In community settings, infection prevention and control in the community should focus on:
 - a. Encouraging “social distancing” of three feet or more;
 - b. Promoting Respiratory Hygiene/Cough Etiquette and hand hygiene to decrease exposure to others;
 - c. Educating on the use of masks by persons with respiratory symptoms, if feasible. Although the use of masks in community settings has not been demonstrated to be a public health measure to decrease infections during a community outbreak, persons may choose to wear a mask as part of individual protection strategies that include Respiratory Hygiene/Cough Etiquette, hand hygiene and avoiding public gatherings. Mask use may also be important for persons who are at high risk for complications of influenza such as those having chronic disorders of the pulmonary or cardiovascular system, including asthma;
 - d. Providing public education on how to use masks appropriately; and
 - e. Educating persons at high risk for complications of influenza to avoid public gatherings (e.g., movies, religious services, public meetings) when pandemic influenza is in the community. They should also avoid going to other public areas (e.g., food stores, pharmacies) and use other persons for shopping or home delivery service.

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APPENDIX W

SUMMARY OF INFECTION PREVENTION AND CONTROL RECOMMENDATIONS

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BOX 1. SUMMARY OF INFECTION PREVENTION AND CONTROL RECOMMENDATIONS FOR CARE OF PATIENTS WITH PANDEMIC INFLUENZA

COMPONENT	RECOMMENDATIONS
Standard Precautions	See www.cdc.gov/ncidod/dhqp/gl_isolation_standard.html
Hand hygiene	Perform hand hygiene after touching blood, body fluids, secretions, excretions and contaminated items; after removing gloves; and between patient contacts. Hand hygiene includes both hand washing with either plain or antimicrobial soap and water or use of alcohol-based products (gels, rinses, foams) that contain an emollient and do not require the use of water. If hands are visibly soiled or contaminated with respiratory secretions, they should be washed with soap (either non-antibimicrobial or antimicrobial) and water. In the absence of visible soiling of hands, approved alcohol-based products for hand disinfection are preferred over antimicrobial or plain soap and water because of their superior microbicidal activity, reduced drying of the skin and convenience.
Personal protective equipment (PPE):	
Gloves	Use for touching blood, body fluids, secretions, excretions and contaminated items; for touching mucous membranes and non-intact skin.
Gowns	Use during procedures and patient-care activities when contact of clothing/exposed skin with blood/body fluids, secretions and excretions are anticipated.
Face/eye protection (e.g., surgical mask and goggles or a face shield).	Use during procedures and patient care activities likely to generate splash or spray of blood, body fluids, secretions and excretions.
Safe work practices	Avoid touching eyes, nose, mouth or exposed skin with contaminated hands (gloved or ungloved); avoid touching surfaces with contaminated gloves and other PPE that are not directly related to patient care (e.g., door knobs, keys and light switches).
Patient resuscitation	Avoid unnecessary mouth-to-mouth contact; use mouthpiece,

	resuscitation bag or other ventilation devices to prevent contact with mouth and oral secretions.
Soiled patient care equipment	Handle in a manner that prevents transfer of microorganisms to oneself, others and to environmental surfaces. Wear gloves if visibly contaminated and perform hand hygiene after handling equipment.
Soiled linen and laundry	Handle in a manner that prevents transfer of microorganisms to oneself, others and to environmental surfaces; wear gloves (gown if necessary) when handling and transporting soiled linen and laundry and perform hand hygiene directly after.
Needles and other sharps	Use devices with safety features when available. Do not recap; bend, break or hand-manipulate used needles. If recapping is necessary, use a one-handed scoop technique then place used sharps in a puncture-resistant container.
Environmental cleaning	Use EPA-registered hospital detergent-disinfectant; follow standard facility procedures for cleaning and disinfection of environmental surfaces; emphasize cleaning/disinfection of frequently touched surfaces (e.g., bed rails, phones and lavatory surfaces).
Disposal of solid waste	Contain and dispose of solid waste (medical and non-medical) in accordance with facility procedures and/or local or state regulation; wear gloves when handling waste; wear gloves when handling waste containers; perform hand hygiene.
Respiratory Hygiene/Cough Etiquette:	Cover the mouth/nose when sneezing/coughing; use disposable tissues and dispose in no-touch receptacles; perform hand hygiene after contact with respiratory secretions; wear a mask (procedure or surgical) if tolerated; sit or stand as far away as possible (more than 3 feet) from persons who are not ill.
Droplet Precautions	See www.cdc.gov/ncidod/dhqp/gl_isolation_droplet.html
Patient placement	Place patients with influenza in a private room or cohort with other patients with influenza. Keep door closed or slightly ajar. Maintain room assignments of patients in nursing homes and other residential settings and apply droplet precautions to all persons in the room.
Personal protective equipment (PPE)	Wear a surgical or procedure mask for entry into patient room. Wear other PPE as recommend for standard precautions.
Patient transport	Limit patient movement outside of room to medically necessary purposes; have patient wear a procedure or surgical mask when outside the room.
Other	Follow standard precautions and facility procedures for handling linen, laundry, dishes, eating utensils and for cleaning /disinfection of environmental surfaces and patient care equipment, disposal of solid waste and postmortem care.
Aerosol-Generating procedures	During procedures that may generate small particles of respiratory secretions (e.g., endotracheal intubation,

	<p>bronchosocopy, nebulizer treatment, suctioning) healthcare personnel should wear gloves, gown, face/eye protection and a fit-tested N95 respiratory or other appropriate particulate respirator.</p>
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BOX 2. RESPIRATORY HYGIENE/COUGH ETIQUETTE

<p>To contain respiratory secretions, all persons with signs and symptoms of a respiratory infection, regardless of presumed cause, should be instructed to:</p> <ul style="list-style-type: none"> • Cover the nose/mouth when coughing or sneezing. • Use tissues to contain respiratory secretions. • Dispose of tissues in the nearest waste receptacle after use. • Perform hand hygiene after contact with respiratory secretions and contaminated objects/materials. <p>Healthcare facilities should ensure the availability of materials for adhering to Respiratory Hygiene/Cough Etiquette in waiting areas for patients and visitors:</p> <ul style="list-style-type: none"> • Provide tissues and no-touch receptacles for used tissue disposal. • Provide conveniently located dispensers of alcohol-based hand rub. • Provide soap and disposable towels for hand washing where sinks are available. <p>Masking and separation of persons with symptoms of respiratory infection</p> <p>During periods of increased respiratory infection in the community, persons who are coughing should be offered either a procedure mask (i.e., with ear loops) or a surgical mask (i.e., with ties) to contain respiratory secretions. Coughing persons should be encouraged to sit as far away as possible (at least 3 feet) from others in common waiting areas. Some facilities may wish to institute this recommendation year-round.</p>

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APPENDIX X

CLINICAL GUIDELINES FOR INTERPANDEMIC AND PANDEMIC ALERT PERIODS

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CLINICAL GUIDELINES FOR THE INTERPANDEMIC AND PANDEMIC ALERT PERIODS

The United States Department of Health and Human Services (HHS) developed supplements to serve as guides for clinicians, with the understanding that the management of influenza is based primarily on sound clinical judgment regarding the individual patient as well as an assessment of locally available resources, such as rapid diagnostics, antiviral medications and hospital beds. Early antiviral therapy shortens the duration of illness due to seasonal influenza and would be expected to have similar effects on illness due to novel or pandemic influenza viruses.

Clinical management must also address supportive care and management of influenza-related complications.

Other supplements that cover topics of potential interest to clinicians are found in the HHS Pandemic Influenza Plan Supplements.

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

- Supplement 1. Pandemic Influenza Surveillance
- Supplement 2. Laboratory Diagnostics
- Supplement 3. Healthcare Planning
- Supplement 4. Infection Control
- Supplement 6. Vaccine Distribution and Use
- Supplement 7. Antiviral Drug Distribution and Use

During the Interpandemic and Pandemic Alert Periods, the primary goal of rapid detection is to quickly identify and contain cases of novel influenza. To limit the need to evaluate an overwhelming number of patients, the screening criteria should be specific, relying on a combination of clinical and epidemiologic features. Although febrile respiratory illnesses are one of the most common indications for medical evaluation, particularly during the winter, during the Interpandemic and Pandemic Alert period, human cases of novel influenza are expected to be quite rare; laboratory diagnosis will most likely be sought for those with severe respiratory illness, such as pneumonia.

Transmission Review: On the basis of epidemiologic patterns of disease transmission, large droplet transmission via coughing and sneezing has traditionally been considered a major route of seasonal influenza transmission. Droplets are typically expelled and then fall within a 3-foot radius of the ill person. Droplet transmission differs from airborne transmission, which occurs by dissemination of small particles or droplet nuclei that remain in the air for periods of time. Some organisms such as *Mycobacterium tuberculosis*, measles virus and varicella [chickenpox] virus can remain infectious while dispersed over long distances by air currents, causing infection in susceptible individuals who have not had face-to-face contact (or been in the same room) with the infectious individual. Special air handling and ventilation systems (e.g., negative-pressure rooms or airborne isolation rooms) are used in healthcare settings to assist in preventing spread of agents that may be dispersed over long distances.

However, in contrast to diseases known to be transmitted by airborne transmission, the pattern of disease spread for seasonal influenza does not suggest transmission across long distances (e.g., through ventilation systems); therefore, negative pressure rooms are not needed for patients with seasonal influenza. However, localized airborne transmission may occur over short distances (i.e., three to six feet) via droplet nuclei or particles that are small enough to be inhaled. The relative contribution of short-range airborne transmission to influenza outbreaks is unknown.

See Essential Element #7 Infection Control (Appendices P, Q, S and T) for further information regarding infection prevention and control in healthcare facilities.

CLINICAL GUIDELINES FOR THE PANDEMIC PERIOD

During the Pandemic Period, the primary goal of rapid detection is to appropriately identify and triage cases of pandemic influenza. During this period, outpatient clinics and emergency departments might be overwhelmed with suspected cases, restricting the time and laboratory resources available for evaluation. In addition, if the pandemic influenza virus exhibits transmission characteristics similar to those of seasonal influenza viruses, illnesses will likely spread throughout the community too rapidly to allow the identification of obvious exposures or contacts. Evaluation will therefore focus predominantly on clinical and basic laboratory findings, with less emphasis on laboratory diagnostic testing and epidemiologic criteria. Nevertheless, clinicians in communities without pandemic influenza activity might consider asking patients about recent travel from a community with pandemic influenza activity or close contact with a suspected or confirmed pandemic influenza case.

A. Criteria for evaluation of patients with possible pandemic influenza

1. **Clinical criteria** - Suspected cases of pandemic influenza virus infection should meet the criteria for influenza-like illness: temperature of $>38^{\circ}\text{C}$ (**100.4 $^{\circ}\text{F}$**) plus either sore throat or cough. Since lower respiratory tract involvement might result in dyspnea (shortness of breath), dyspnea should be considered as an additional criterion. Therefore, the full clinical criteria are: fever plus one of the following: sore throat, cough or dyspnea. Although past influenza pandemics have most frequently resulted in respiratory illness, the next pandemic influenza virus strain might present with a different clinical syndrome. During a pandemic, updates on other clinical presentations will be provided at: <http://www.pandemicflu.gov> .

Recommendations for general evaluation of patients with influenza-like illness and exceptions to the clinical criteria are provided in this appendix.

2. **Epidemiologic criteria** - During the Pandemic Period, an exposure history will be marginally useful for clinical management when disease is widespread in a community. In addition, there will be a relatively high likelihood that any case of influenza-like illness during that time period will be pandemic influenza. Once

pandemic influenza has arrived in a particular locality, clinical criteria will be sufficient for classifying the patient as a suspected pandemic influenza case.

B. Initial management of patients who meet the criteria for pandemic influenza

When a patient meets the criteria for a suspected case of pandemic influenza, healthcare personnel should initiate the following activities:

1. Notify the local and state health departments and report each patient who meets the clinical and epidemiological criteria for a suspected case of pandemic influenza to the state or local health department as quickly as possible.
2. If the patient is hospitalized, implement infection prevention and control precautions for pandemic influenza, including Respiratory Hygiene/Cough Etiquette. Place the patient on Droplet Precautions for a minimum of 5 days from the onset of symptoms. Healthcare personnel should wear appropriate as described in Appendix D. Once a pandemic is underway, hospital admission of patients should be limited to those with severe complications who cannot be cared for outside the hospital setting. Patients should be admitted to either a single-patient room or an area designated for cohorting of patients with influenza. Patient movement and transport outside the isolation area should be limited to medically necessary purposes.
3. Obtain clinical specimens for general evaluation, as clinically indicated. Once pandemic influenza has arrived in a community, influenza testing will likely not be needed for most patients. Laboratory testing in conjunction with health departments will likely be performed in a subset of pandemic influenza cases as part of ongoing virologic surveillance to monitor the antigenic evolution of the strains for vaccine strain selection purposes. At the beginning or end of a pandemic outbreak in a community, diagnostic testing might aid cohorting decisions, but may be optional in the setting of high local prevalence. Influenza diagnostic testing should be considered before initiating treatment with antivirals (see Appendix C).
4. As with seasonal influenza, reverse transcriptase polymerase chain reaction and virus isolation from tissue culture will be the most accurate methods for diagnosing pandemic influenza. Generally, specimens should include combined nasopharyngeal aspirates or nasal swabs and throat swabs, stored at 4°C (39.2°F) in viral transport media. During the Pandemic Period, bio-safety level 2 conditions should be sufficient for viral culture of clinical specimens from suspected pandemic influenza patients.
5. Rapid diagnostic tests for influenza and immunofluorescence may be helpful for initial clinical management, including cohorting and treatment (see above). However, rapid influenza tests have relatively low sensitivity for detecting seasonal influenza and their ability to detect pandemic influenza viruses is

unknown. The sensitivity of rapid diagnostic tests will likely be higher in specimens collected within two days of illness onset, in children and when tested at clinical laboratories that perform a high volume of testing. Because during a pandemic a negative rapid test may be a false negative, test results need to be interpreted within the overall clinical context. For example, it may not be optimal to withhold antiviral treatment from a seriously ill high-risk patient on the basis of a negative test; however, in a setting of limited antiviral drug availability, treatment decisions in less high-risk situations could be based on test results. The risk of a false-negative test also must be taken into account in making cohorting decisions. Rapid diagnostic testing should not preclude more reliable testing, if available.

6. Decide on inpatient or outpatient management. The decision to hospitalize a suspected pandemic influenza case will be based on the physician's clinical assessment of the patient as well as the availability of hospital beds and personnel. Guidelines on cohorting and infection prevention and control for admitted patients can be found in Essential Element #7 Infection Prevention and Control.

An unstable patient will be considered a high priority for admission, but patients with high-risk conditions might also warrant special attention, such as observation or close follow-up, even if disease is mild. On the other hand, home management with follow-up might be appropriate for well-appearing young children with fever alone.

See U.S. Department of Health and Human Services Supplement 7 for inpatient and outpatient treatments strategies. (<http://www.hhs.gov/pandemicflu/plan/pdf/HHSPandemicInfluenzaPlan.pdf>) Patients cared for at home should be separated from other household members as much as possible. All household members should carefully follow recommendations for hand hygiene and tissues used by the ill patient should be placed in a bag and disposed with other household waste. Infection within the household may be minimized if a primary caregiver is designated; ideally, someone who does not have an underlying condition that places them at increased risk of severe influenza disease. Although no studies have assessed the use of masks at home to decrease the spread of infection, using a surgical or procedure mask by the patient or caregiver during interactions may be of benefit. Separation of eating utensils for use by a patient with influenza is not necessary, as long as they are washed with warm water and soap.

C. Clinical management of pandemic influenza patients

See <http://www.cdc.gov> for current antiviral information and treatment strategies. In addition to use of antivirals, clinical management of severe influenza should address supportive care and the rapid identification and treatment of secondary complications. During the Pandemic Period, Centers for Disease Control and Prevention (CDC) may request virus isolates from persons who fail treatment or antiviral prophylaxis, as these strains are more likely to be drug resistant. In addition, randomly collected isolates will be tested for resistance to establish nationwide rates.

Children aged <18 years with suspected or confirmed pandemic influenza should not be treated with aspirin or other salicylate-containing products because of an increased risk of Reye Syndrome (characterized by acute encephalopathy and liver failure) in this age group. Ribavirin and immunomodulatory therapies, such as steroids, are not approved by the Food and Drug Administration for treatment of severe influenza of any type and are purely investigational at this time. These agents frequently have severe adverse effects, such as bone marrow and hepatic toxicity, while the benefits of these therapies are unknown.

The major clinical presentations and complications related to seasonal human influenza occur more commonly in persons with certain underlying medical conditions, such as chronic respiratory or cardiovascular disease and extremes of age. Limited data are available on risk factors and complications related to infection with novel influenza viruses and these may change as individual strains evolve. In particular, post-influenza community-acquired pneumonia will likely be a commonly encountered complication and clinicians will need to be aware of recommended methods for diagnosis and treatment.

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APPENDIX Y

CRITERIA FOR EVALUATION OF PATIENTS WITH POSSIBLE NOVEL INFLUENZA

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Criteria for evaluation of patients with possible novel influenza

The following criteria are based on the features of recent Asian avian influenza A (H5N1) cases but are intended for use in evaluating suspected cases of infection with any novel influenza A virus strain. During the Pandemic Alert Period, human infections with novel influenza A viruses will be an uncommon cause of influenza-like illness; therefore, both clinical and epidemiologic criteria should be met. The criteria will be updated when needed as more data are collected.

Information on U. S. Department of Health and Human Services (HHS) recommendations on the use of limited stocks of antiviral medications during a pandemic is provided in Appendix C of this document.

1. **Clinical criteria** - Any suspected cases of human infection with a novel influenza virus must first meet the criteria for influenza-like illness, defined as a temperature of $>38^{\circ}\text{C}$ (**100.4 $^{\circ}\text{F}$**) plus either sore throat or cough. Since lower respiratory tract involvement might result in dyspnea (shortness of breath), it should be considered as an additional criterion. Therefore, the full clinical criteria are: fever plus one of the following: sore throat, cough or dyspnea.

Although recent infections with novel influenza viruses have resulted in severe respiratory illness, the next pandemic influenza virus strain might present with a different clinical syndrome. In such a situation, the clinical criteria will be modified accordingly and posted at <http://www.cdc.gov/flu>.

Given the large number of influenza-like illness that clinicians encounter during a typical flu season, laboratory evaluation for novel influenza A viruses during the Interpandemic and Pandemic Alert Periods is recommended only for:

- a. Hospitalized patients with severe influenza-like illness, including pneumonia, who meet the epidemiologic criteria (see below); or
 - b. Non-hospitalized patients with influenza-like illness and with strong epidemiologic suspicion of novel influenza virus exposure (e.g., direct contact with ill poultry in an affected area or close contact with a known or suspected human case of novel influenza); and
 - c. Updated recommendations for the evaluation of patients with respiratory illnesses can be found on <http://www.cdc.gov/flu>. Exceptions to the current clinical criteria are provided on the same Website as stated in the paragraph.
2. **Epidemiologic criteria** - Epidemiologic criteria for evaluation of patients with possible novel influenza focus on the risk of exposure to a novel influenza virus with pandemic potential. Although the incubation period for seasonal influenza ranges from 1 to 4 days, the incubation periods for novel types of influenza are currently unknown

and might be longer. Therefore, the maximum interval between potential exposure and symptom onset is set conservatively at 10 days.

Exposure risks fall into two categories: travel and occupational.

a. **Travel risks** - Persons have a travel risk if they have:

- i. Recently visited or lived in an area affected by highly pathogenic avian influenza A outbreaks in domestic poultry or where a human case of novel influenza has been confirmed and *either*
- ii. Had direct contact with poultry, or
 - a) *Direct contact* with poultry is defined as: Touching birds (well-appearing, sick or dead); Touching poultry feces or surfaces contaminated with feces, or Consuming uncooked poultry products (including blood) in an affected area.
- iii. Had close contact with a person with confirmed or suspected novel influenza. Updated listings of areas affected by avian influenza A (H5N1) and other current/recent novel strains are provided on the Websites of the World Organization for Animal Health (OIE) http://www.oie.int/eng/en_index.htm), World Health Organization (WHO) <http://www.who.int/em/> and the Centers for Disease Control and Prevention (CDC) <http://www/cdc.gov/flu/>.
 - a) *Close contact* with a person from an infected area with confirmed or suspected novel influenza is defined as being within 3 feet of that person during their illness.

Because specific testing for human infection with Asian avian influenza A (H5N1) might not be locally available in an affected area, persons reporting close contact in an affected area with a person suffering from a severe, yet unexplained, respiratory illness should also be evaluated.

Clinicians should recognize that human influenza viruses circulate worldwide and year-round, including in countries with outbreaks of Asian avian influenza A (H5N1) among poultry. Therefore, during the Interpandemic and Pandemic Alert Periods, human influenza virus infection can be a cause of influenza-like illness among returned travelers at any time of the year, including during the summer in the United States. This includes travelers returning from areas affected by poultry outbreaks of highly pathogenic avian influenza A (H5N1) in Asia. As of October 2005, travelers are currently more likely to have infection with human influenza viruses than with avian influenza A (H5N1) viruses.

b. **Occupational risks** - Persons at occupational risk for infection with a novel strain of influenza include:

- i. Persons who work on farms or live poultry markets,
- ii. Persons who process or handle poultry infected with known or suspected avian influenza viruses,
- iii. Workers in laboratories that contain live animal or novel influenza viruses and
- iv. Healthcare workers in direct contact with a suspected or confirmed novel influenza case.

Information on limiting occupational risk is provided on the Occupational Health and Safety Administration (OSHA) Website at: <http://www.osha.gov/ds/guidance/avian-flu.html>

During the Interpandemic and Pandemic Alert Periods when there is no sustained human-to-human transmission of any novel influenza viruses, direct contact with animals such as poultry in an affected area or close contact with a case of suspected or confirmed human novel influenza for any reason is required for further evaluation. During the Pandemic Alert Period, Phases 3 and 4, the majority of human cases of novel influenza will result from avian-to-human transmission. Therefore, a history of direct contact with poultry (well-appearing, sick or dead), consumption of uncooked poultry or poultry products or direct exposure to environmental contamination with poultry feces in an affected area will be important to ascertain. During the Pandemic Alert Period, Phase 5, a history of close contact with an ill person suspected or confirmed to have novel influenza in an affected area will be even more important.

3. **Other avian influenza A viruses** - Although the epidemiologic criteria for novel influenza are based on recent human cases of Asian avian influenza A (H5N1), they are intended for use in the evaluation of suspected cases of infection with any novel influenza A virus strain, including other avian influenza viruses. Other avian influenza A viruses that have caused human disease include the highly pathogenic viruses H7N7 and H7N3 and the low pathogenic viruses H9N2 and H7N2. Some of these human cases have occurred in Europe (Netherlands) and North America (Canada and the United States). Therefore, the same high-risk exposures defined above for Asian avian influenza A (H5N1) also apply to other avian influenza A viruses. A strong epidemiologic link to an avian influenza outbreak in poultry even in areas that have not experienced poultry outbreaks of avian influenza A (H5N1) may raise the index of suspicion for human infection with avian influenza A viruses.

In the future, other animal hosts (in addition to poultry) or novel influenza A virus subtypes (in addition to H5N1) might become significantly associated with human disease. If such events occur, this guidance will be updated.

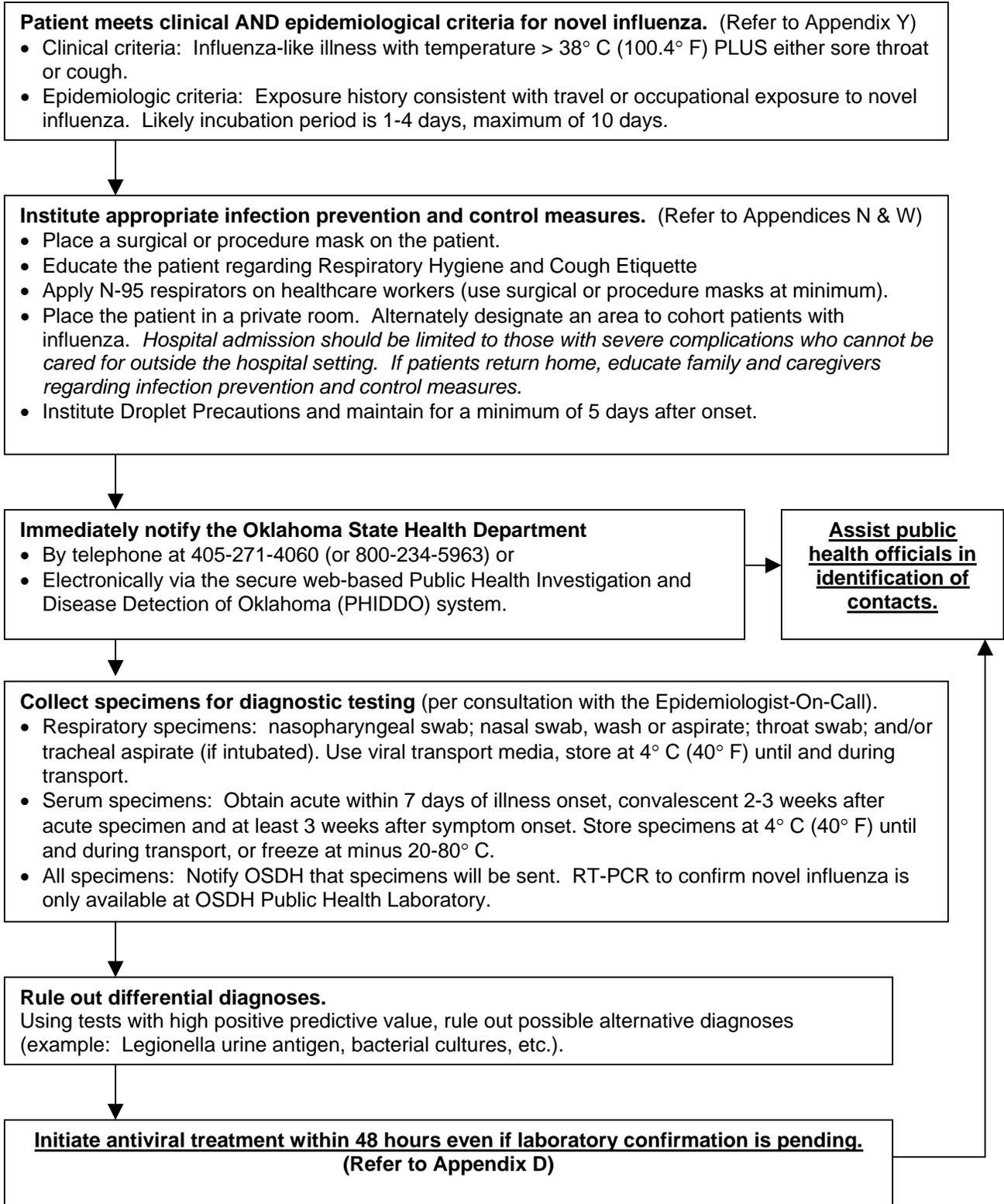
APPENDIX Z

SUMMARY OF INITIAL MANAGEMENT OF PATIENTS WHO MEET THE CRITERIA FOR NOVEL INFLUENZA

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Summary of Initial Management of Patients Who Meet the Criteria for Novel Influenza

Perform all of these steps when novel influenza is suspected.



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APPENDIX AA

SUMMARY OF CLINICAL GUIDELINES

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BOX 1. RISK OF NOVEL INFLUENZA IN PERSONS WITH SEVERE RESPIRATORY DISEASE OR INFLUENZA-LIKE ILLNESS DURING THE INTERPANDEMIC AND PANDEMIC ALERT PERIODS

Clinicians should recognize that human influenza A and B viruses and other respiratory viruses circulate year-round among people throughout the world, including in countries affected by outbreaks of avian influenza A viruses in poultry. Seasonal human influenza A and B community outbreaks occur in temperate climates of the northern and southern hemisphere, and human influenza activity may occur year-round in subtropical and tropical regions. Outbreaks of human influenza can occur among travelers during any time of the year, including periods of low influenza activity in the United States (e.g., summer).

Phases 1, 2: Interpandemic Period

A novel influenza A virus has been detected in animals but not in humans. **During these phases, the risk of human infection with a novel influenza A virus strain is extremely low. The risk of human infection with human influenza viruses or other viruses is much higher in persons living in or traveling to affected areas.**

Phases 3, 4: Pandemic Alert Period

A novel influenza A virus has been detected in humans through sporadic animal-to-human transmission in an affected area (e.g., direct contact with infected poultry), and few cases of limited, local human-to-human transmission have occurred (small clusters of cases). **During these phases, the risk of human infection with a novel influenza A virus strain is very low. The risk of human infection with human influenza viruses or other viruses is much higher in persons living in or traveling to affected areas.**

Phase 5: Pandemic Alert Period

A novel influenza A virus has been detected in humans in larger clusters in an affected area, suggesting that the virus is becoming better adapted to spread among people. **During this period, the risk of human infection with a novel influenza A virus strain is higher, depending on specific exposures, in persons living in or traveling to affected areas. Human infection with human influenza viruses or other viruses will occur and should still be considered.**

BOX 2. CLINICAL EVALUATION OF PATIENTS WITH INFLUENZA-LIKE ILLNESS DURING THE INTERPANDEMIC AND PANDEMIC ALERT PERIODS

- Patients who require hospitalization for an ILI which a definitive alternative diagnosis is not immediately apparent* should be questioned about: 1) travel to an area affected by avian influenza A virus outbreaks in poultry, 2) direct contact with poultry, 3) close contact with persons with suspected or confirmed novel influenza, or 4) occupational exposure to novel influenza viruses (such as through agricultural, healthcare, or laboratory activities).
- Patients may be screened on admission for recent seasonal influenza vaccination and pneumococcal vaccination. Those without a history of immunization should receive these vaccines before discharge, if indicated.
- Patients meeting the epidemiologic criteria for possible infection with a novel strain of influenza should undergo a routine diagnostic work-up, guided by clinical indications. Appropriate personal protective equipment should be used when evaluating patients with suspected novel influenza, including during collection of specimens. **
- Diagnostic testing for a novel influenza A virus should be initiated as follows:
 - Collect **all** of the following specimens: nasopharyngeal swab, nasal swab, wash, or aspirate, throat swab and tracheal aspirate (if intubated), and place into viral transport media and refrigerate at 4° C until specimens can be transported for testing.
 - Immediately contact the local and state health departments to report the suspected case and to arrange novel influenza testing by RT-PCR.
 - RT-PCR testing is not available in hospital laboratories and must be performed at a qualified laboratory such as a state health department laboratory or the CDC Influenza Laboratory. **Viral culture should be performed only at bio-safety level 3 [BSL-3] with enhancements (see HHS Supplement 2).**
 - Depending on the clinical presentation and the patient's underlying health status, other initial diagnostic testing might include:
 - Pulse oximetry,
 - Chest radiograph,
 - Complete blood count (CBC) with differential,
 - Blood cultures,
 - Sputum (in adults), tracheal aspirate and pleural effusion aspirate (if an effusion is present) gram stain and culture,
 - Antibiotic susceptibility testing (encouraged for all bacterial isolates),
 - Multivalent immunofluorescent antibody testing or PCR of nasopharyngeal aspirates or swabs for common viral respiratory pathogens, such as influenza A and B, adenovirus, para influenza viruses and respiratory syncytial virus, particularly in children,
 - In adults with radiographic evidence of pneumonia, Legionella and pneumococcal urinary antigen testing,
 - If clinicians have access to rapid and reliable testing (e.g., PCR) for *M. pneumoniae* and *C. pneumoniae*, adults and children <5 yrs with radiographic pneumonia should be tested.
 - Comprehensive serum chemistry panel, if metabolic derangement or other end-organ involvement, such as liver or renal failure, is suspected.
- *Further evaluation and diagnostic testing should also be considered for outpatients with strong epidemiologic risk factors and mild or moderate illness (see Box 3).
- **Healthcare personnel should wear N-95 masks, or surgical or procedure masks at a minimum upon entering a patient's room (Droplet Precautions), as well as gloves and gowns, when indicated (Standard Precautions).

BOX 3. SPECIAL SITUATIONS AND EXCEPTIONS TO THE CLINICAL CRITERIA

Persons with a high risk of exposure—For persons with a high risk of exposure to a novel influenza virus (e.g., poultry worker from an affected area,* caregiver of a patient with laboratory-confirmed novel influenza, employee in a laboratory that works with live novel influenza viruses), epidemiologic evidence might be enough to initiate further measures, even if clinical criteria are not fully met. In these persons, early signs and symptoms—such as rhinorrhea, conjunctivitis, chills, rigors, myalgia, headache and diarrhea—in addition to cough or sore throat, may be used to fulfill the clinical criteria for evaluation.

High-risk groups with atypical symptoms—Young children, elderly patients, patients in long-term care facilities and persons with underlying chronic illnesses might not have typical influenza-like symptoms, such as fever. When such patients have a strong epidemiologic risk factor, novel influenza should be considered with almost any change in health status, even in the absence of typical clinical features. Conjunctivitis has been reported in patients with influenza A (H7N7) and (H7N3) infections. In young children, gastrointestinal manifestations such as vomiting and diarrhea might be present. Infants may present with fever or apnea alone, without other respiratory symptoms and should be evaluated if there is an otherwise increased suspicion of novel influenza.

*Updated lists containing information about affected areas are provided at the Websites of the OIE (http://www.oie.int/eng/en_index.htm), WHO (www.who.int/en/) and CDC (www.cdc.gov/flu/).

BOX 4. HOME CARE INFECTION CONTROL GUIDANCE FOR PANDEMIC INFLUENZA PATIENTS AND HOUSEHOLD MEMBERS

Most patients with pandemic influenza will be able to remain at home during the course of their illness and can be cared for by family members or others who live in the household. Anyone who has been in the household with an influenza patient during the incubation period is at risk for developing influenza. A key objective in this setting is to limit transmission of pandemic influenza within and outside the home.

Management of influenza patients in the home

- Physically separate the patient with influenza from non-ill persons living in the home as much as possible.
- Patients should not leave the home during the period when they are most likely to be infectious to others (i.e., 5 days after onset of symptoms). When movement outside the home is necessary (e.g., for medical care), the patient should follow Respiratory Hygiene/Cough Etiquette (i.e., cover the mouth and nose when coughing and sneezing) and should wear a mask.

Management of other persons in the home

- Persons who have not been exposed to pandemic influenza and who are not essential for patient care or support should not enter the home while persons are still having a fever due to pandemic influenza.
- If unexposed persons must enter the home, they should avoid close contact with the patient.
- Persons living in the home with the patient with pandemic influenza should limit contact with the patient to the extent possible; consider designating one person as the primary care provider.
- Household members should be vigilant for the development of influenza symptoms. Consult with healthcare providers to determine whether a pandemic influenza vaccine, if available, or antiviral prophylaxis should be considered.

Infection control measures in the home

- All persons in the household should carefully follow recommendations for hand hygiene (i.e., hand washing with soap and water or use of an alcohol-based hand rub) after contact with an influenza patient or the environment in which they are receiving care.
- Although no studies have assessed the use of masks at home to decrease the spread of infection, using a surgical or procedure mask by the patient or caregiver during interactions may be beneficial.
- Soiled dishes and eating utensils should be washed either in a dishwasher or by hand with warm water and soap. Separation of eating utensils for use by a patient with influenza is not necessary.
- Laundry may be washed in a standard washing machine with warm or cold water and detergent. It is not necessary to separate soiled linen and laundry used by a patient with influenza from other household laundry. Care should be used when handling soiled laundry (i.e., avoid “hugging” the laundry) to avoid self-contamination. Hand hygiene should be performed after handling soiled laundry.
- Tissues used by the ill patient should be placed in a bag and disposed of with other household waste. Consider placing a bag for this purpose at the bedside.
- Environmental surfaces in the home should be cleaned using normal procedures.

Additional guidelines can be found in the U.S. Department of Health and Human Services (HHS) Pandemic

APPENDIX BB
GLOSSARY OF TERMS

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GLOSSARY OF TERMS

EMERGENCY AS PROCLAIMED BY THE GOVERNOR: Whenever, in the opinion of the Governor, the safety of Oklahoma and its citizens requires the exercise of extreme measures due to an impending or actual disaster, he may declare an emergency to exist in the state, or any part of the state, in order to aid individuals and local government.

EMERGENCY OPERATIONS CENTER (EOC): A centralized facility utilized by governments for direction, control and coordination in an emergency or disaster.

EMERGENCY SUPPORT FUNCTION (ESF): A functional area of response activity established to facilitate the deliver of Federal and State assistance required during the immediate response phase of a disaster to save lives, protect property and public health and to maintain public safety.

LOCAL GOVERNMENT: Any county, city or incorporated town in the State of Oklahoma.

METROPOLITAN MEDICAL RESPONSE SYSTEM (MMRS): Program began in 1996 and currently is funded by the United States Department of Homeland Security (DHS). The primary focus of the MMRS program is to develop or enhance existing emergency preparedness systems to effectively respond to a public health crisis, especially a weapons of mass destruction (WMD) event. Through preparation and coordination, local law enforcement, fire, HAZMAT, EMS, hospital, public health and other "first response" personnel plan to more effectively respond in the first 48 hours of a public health crisis.

MEDICAL EMERGENCY RESPONSE (MERC): Designated site with assigned individuals serving to coordinate healthcare systems during responses within an assigned region of the State of Oklahoma.

OKLAHOMA DEPARTMENT OF EMERGENCY MANAGEMENT (OEM): The agency responsible for preparation and execution of emergency functions to prevent, minimize and repair injury and damage resulting from hostile actions or natural disasters as stated in the Oklahoma Emergency Management Act of 2003.

OKLAHOMA HEALTH ALERT NETWORK (OK-HAN): The Oklahoma Health Alert Network (OK-HAN) is used to provide emergent health information to healthcare professionals and public health partners. Through a national directive, every state must operate a Health Alert Network and follow guidelines and policies set by the Centers for Disease Control and Prevention (CDC). The need to distribute vital health information in a timely and secure manner grows as we attempt to fight terrorism and to protect the public from disease outbreaks. The Oklahoma Health Alert Network system consists of a secure Website where users can view all alerts, advisories, updates and events distributed.

Registered users can also view and share documents in a secure format through the document library. The Oklahoma Health Alert Network system distributes health information in accordance to national Health Alert Network standards.

OKLAHOMA STATE IMMUNIZATION INFORMATION SYSTEM (OSIIS):

Statewide immunization documentation database shared between the OSDH and local partners to record vaccination administration.

PANDEMIC INFLUENZA TEAM: The OSDH Pandemic Influenza Team consists of Chief of Operations for Disease Prevention Services, State Epidemiologist, OSDH Pharmacist, Terrorism Preparedness and Response Service Chief, Terrorism Preparedness and Response Service Strategic National Stockpile Coordinator, Terrorism Preparedness and Response Service Hospital and Public Health Preparedness Division Director, Oklahoma Hospital Association Director, Oklahoma Pharmacy Association Director, an Oklahoma physician specializing in the practice of infectious diseases, a medical ethicist, a Metropolitan Medical Response Service representative, an OCCHD designee, a TCCHD designee and the OSDH Chief of Nursing Services. It will also have members from the Oklahoma City Area Inter-Tribal Health Board and Indian Health Service. They will make recommendations as deemed appropriate to the Commissioner of Health.

RECOVERY PERIOD: That period of time subsequent to an emergency when economic recovery from disaster damages takes place, including the use of any available local, state, federal government and private resources.

RESPONSE: Activities to address the immediate and short-term needs during an emergency or disaster.

APPENDIX CC

RESOURCE LINKS AND REFERENCES

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RESOURCE LINKS

American Psychiatric Association <http://www.psych.org/asterpsych>

American Psychological Association (APA) Help Center <http://www.apahelpcenter.org>

CDC/American Red Cross, Maintaining a healthy state of mind
http://www.redcross.org/preparedness/cdc_english/health.asp

De Jong, M.D., Thanh TT, Khanh TH, et al.(2005). Oseltamivir Resistance During Treatment of Influenza A (H5N1) Infection. New England Journal of Medicine: 353:2667-72.

Department of Health and Human Services Center for Disease Control and Prevention Preventing Flu <http://www.cdc.gov/flu/protect/preventing.htm>

Department of Health and Human Services Center for Disease Control and Prevention – Respiratory Poster <http://www.cdc.gov/ncidod/dhqp/pdf/Infdis/RespiratoryPoster.pdf>

Department of Health and Human Services Center for Disease Control and Prevention- Information Networks and Other Information Sources
<http://www.cdc.gov/doc.do/id/0900f3ec80226c7a/states>

Department of Health and Human Services: Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings during and Influenza Pandemic, October 2006. <http://www.pandemicflu.gov/plan/healthcare/maskguidancehc.html#appA>

Department of U.S. Department of Health and Human Services Pandemic Influenza Plan Supplement 4 Infection Control, last revised November 12, 2006.
<http://www.hhs.gov/pandemicflu/plan/sup4.html>

Disaster Epidemiology Emergency Preparedness (DEEP) Center, University of Miami Miller School of Medicine <http://www.deep.med.miami.edu>

Disaster Technical Assistance Center, Research listing and fact sheet on self-care
<http://www.mentalhealth.samhsa.gov/dtac/Selfcare.asp>

Interim Pre-pandemic Planning Guidance: Community Strategy for Pandemic Influenza Mitigation in the United States-Early, Targeted, Layered Use of Nonpharmaceutical Interventions, U.S. Department of Health and Human Services, February 2007.

National Center for PTSD, Department of Veterans' Affairs <http://www.ncptsd.va.gov>

National Child Traumatic Stress Network <http://www.nctsnet.org>

New England Journal Medicine: 2005, Jan. 27; 352(4): 333-346.

Occupational Health and Safety Administration. <http://osha.gov/dsg/guidance/avian-flu.html>

Oklahoma State Department of Health <http://www.health.ok.gov>

Oklahoma Department of Emergency Management <http://www.ok.gov/oem>

Pediatrics Infection Disease Journal, 2003, Feb. 22(2):164-177

Project Liberty <http://www.projectliberty.state.nv.us/>

Substance Abuse and Mental Health Services Administration (AMSHA/HHS) Disaster Readiness and Response. http://www.samhsa.gov/Matrix/matrix_disaster.aspx

United States Department of Health and Human Services
<http://www.hhs.gov/pandemicflu/plan>

United States Government Avian and Pandemic Flu. <http://www.pandemicflu.gov>

United States Department of Health and Human Service (HHS) Pandemic Influenza Plan,
United States Department of Health and Human Services, November 2005

World Health Organization Global Influenza Preparedness Plan
http://www.who.int/csr/resources/publications/influenza/GIP_2005_5Eweb.pdf

World Organisation of Animal Health. http://www.oie.int/eng/en_index.htm

APPENDIX DD

ACKNOWLEDGEMENTS

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Acknowledgements

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