2016

Oklahoma Pandemic Response Plan

Prepared by the OSDH Pandemic Influenza Committee
February 2016

Oklahoma
State
Department
of Health

Plan Approval and Authorization

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2016 Oklahoma Pandemic Response Plan
Part I: Background

Executive Summary

The *Oklahoma Pandemic Response Plan* (*"Plan"*) was previously known as the *Oklahoma Pandemic Influenza Management Plan*. The *Plan* and its appendices were originally developed as guidance for a coordinated statewide, multi-sector response to pandemic influenza but have evolved to incorporate any disease pandemic as well as variations in the severity of a pandemic. The overall goal is to minimize serious illness and deaths attributable to any pandemic. Prevention and preparedness activities to facilitate the public health response and recovery components after a pandemic are incorporated into this guidance. This *Plan* also recognizes that preparedness planning is essential for businesses, schools, governments, 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, regional, and tribal partners, continues efforts to promote planning and response activities to enhance partnerships among all entities to respond to a pandemic.

The OSDH first published the *Oklahoma Pandemic Influenza Management Plan* in July 2005. 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 *Plan* to address areas that needed to be enhanced. The 2006 *Plan* was expanded from six to nine essential elements 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 2007, another essential element, Workforce Psychosocial Support, was added to the *Plan*.

In April 2009, the nation was faced with the first pandemic of the 21st century when human infections with a novel swine-origin influenza A (H1N1) virus in North America were recognized, and a national public health emergency was declared. The OSDH activated public health emergency operations from April 23 – June 18, 2009 to detect and respond to initial novel H1N1 influenza ("swine flu") transmission within the state, thereby exercising many of the *Plan* components. On June 11, 2009, the World Health Organization (WHO) signaled a global pandemic was underway by raising the worldwide pandemic alert level to Phase 6. A second wave of pandemic influenza transmission began simultaneously with students returning to school for a new academic season and OSDH re-activated emergency operations on September 14, 2009 lasting over eight months. Fortunately, the severity of the 2009 H1N1 pandemic (Severity Category 1) was much less than originally perceived, but gaps were identified in the *Plan* that needed to be addressed. In 2010, the *Plan* was revised with the intent of providing more functionality and scalability during future pandemic response efforts. To further streamline the *Plan*, in 2011, the Oklahoma Public Health Activation Levels were used to organize the *Plan*

(see Table 1) instead of following the HHS pandemic phase periods. This change has been maintained to more accurately reflect the agency's response to future pandemics.

Introduction

Influenza viruses have threatened the health of animal and human populations for centuries. These 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 with the ability to easily pass between and infect humans. When this happens, a worldwide pandemic is possible if humans show little immunity to the new novel virus.

The animal population, particularly waterfowl or swine, may serve as a reservoir for new influenza viruses. Since 1997, public health authorities have been monitoring an Asian strain of highly pathogenic H5N1 avian influenza as a potential pandemic virus. Scientists believe that avian (bird) viruses played a role in three of the last four documented pandemics, and the Asian H5N1 influenza virus has shown the ability to infect multiple species, including long-range migratory birds, pigs, cats, and humans. While much of the focus was on surveillance of Asian H5N1 avian influenza, a novel triple reassortant swine-origin influenza A (H1N1) virus, capable of efficient person-to-person transmission, emerged in Mexico. A summary of the early outbreak of the swine-origin H1N1 virus in the U.S. from April 15 through May 5, 2009 is published in *The New England Journal of Medicine.*[1] With global travel being an important factor in the rapid spread of this novel influenza virus, at least 70 countries had residents with laboratory-confirmed infections from swine-origin H1N1 influenza virus by June 2009. This led the WHO to raise the worldwide pandemic level to Phase 6, the highest level, on June 11, 2009. Spread of the 2009 H1N1 virus escalated during the fall and early winter of 2009 resulting in laboratory-confirmed infections among residents in more than 214 countries and territories, and over 18,000 influenza-related deaths worldwide reported by the end of the pandemic in August 2010.

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 rates during the more recent pandemics (in 1957, 1968, and 2009) were 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) (see Appendix A), the rate of illness and death could rival previous pandemics despite modern healthcare technology. Beyond the human toll, a severe influenza pandemic has the potential to create significant social disruption and economic impact. Absenteeism across multiple sectors related to personal illness, illness in family

[1] N Engl J Med 2009 June 18; 360(425):2605-2615.

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

It was fortunate the features of the 2009 H1N1 influenza pandemic illness pattern were consistent with seasonal influenza epidemics with a relatively low hospitalization and mortality rate. However, should a future pandemic influenza virus strain mimic the virulence of the 1918 pandemic strain, the 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 collaboration and interaction between governmental agencies (beyond health departments) and private industry.

2. The pandemic vaccine and possibly antiviral medications are likely to 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 may be temporarily overwhelmed and adapted standards of care may need to be employed if the pandemic severity index is high.

6. Medical supplies, including antibiotics, may be in short supply as secondary complications of influenza are addressed in an increased proportion of patients.

7. Fear, fatigue, psychological stress, and caring for family members may prevent people from going to work, thereby interrupting medical services and community infrastructure.

It is important to recognize that a pandemic may stem from the emergence of a novel microbe other than an influenza virus. Regardless of the identity of the pandemic agent, many of the components of this *Plan* will still be applicable and implemented for response to and control of an infectious disease pandemic. An example of this cross-application was another serious respiratory disease outbreak of this century that occurred between November 2002 and July 2003. This outbreak was caused by the Severe Acute Respiratory Syndrome coronavirus also known as "SARS." Although not labeled as a pandemic, the newly recognized virus spread rapidly to multiple continents, infected 8,422 persons, and caused 916 deaths worldwide. There was a 10.9% fatality rate according to the WHO; no treatment drug was identified and a SARS vaccine was not available during the global outbreak, or subsequently developed. Somewhat inexplicably, SARS disappeared as quickly as it emerged. Most scientists consider that SARS has not been eradicated as smallpox has and is likely present in its natural host reservoirs with the potential to re-emerge as a human pathogen.

Revision of this document is an important evolutionary step in Oklahoma's preparation for a pandemic. The *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 further define critical roles in the implementation of the state plan to effectively manage future pandemic events.

Pandemic planning and response are categorized and referenced differently by various national and international partners (see Table 1). HHS/CDC describes four periods, the WHO delineates six phases, and the U.S. Federal Government Response Plan follows six stages. As shown in Table 1, the Oklahoma Public Health Activation Levels, which are consistent with the State Emergency Management response levels, have been included to better identify response triggers and actions at the state level.

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

WHO Phases		US Federal Government Response Stages		Oklahoma Public Health Activation Levels	
HHS/CDC 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	4	Monitoring (Routine Planning & Day-to-Day Operations)
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/CDC 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	Monitoring (Routine Planning & Day-to-Day Operations)
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 of novel influenza		
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 of novel influenza		
HHS/CDC PANDEMIC PERIOD					
6	Increased and sustained transmission in the general population.	3	Widespread human outbreaks in multiple foreign locations	4	Monitoring (Notifications & Awareness)
		4	First human case in United States	3	Partial Activation
		5	Spread throughout United States	2 (1)	Full-Scale Activation (w/ Federal Support)
		6	Recovery and preparation for subsequent waves		
HHS/CDC POST-PANDEMIC PERIOD **Transmission has been controlled or eliminated, no new cases** DEMOBILIZATION and return to MONITORING					

Purpose and Goals of the Plan

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

Based on historical influenza seasons, 5%-20% of the population becomes ill with the highest rates of influenza-related complications among 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 children and adults less than 65 years old. The 1918 pandemic was a severe pandemic affecting young adults. This population had the highest mortality rates with nearly one-half the influenza-related deaths occurring in those 20-40 years old. To help communities pre-plan for a pandemic in a scalable manner based on the severity of a pandemic, CDC created the Pandemic Severity Index (see Appendix A). It was designed to help communities implement mitigation strategies according to the level of pandemic severity.

An estimate of the number of deaths and hospitalizations that may occur in Oklahoma during an 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/flu/tools/fluaid. The numbers were generated using the 2010 U.S. Bureau of Census data (state population of 3,751,351). Based on the model, using a proportion representing 15% to 35% of the state's population clinically affected by influenza and a pandemic severity index of 3 or greater, it is projected between 2,518 and 20,078 Oklahomans would require hospitalization and between 919 and 6,164 Oklahomans would die during the first 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 (Moderate to Severe) By Attack Rate and Age Group

Age Group	Attack rates		
	15%	25%	35%
0-18 years of age Most likely # of hospitalizations	280	466	652
Range:	143 – 1,133	239 – 1,888	334 – 2,644
19-64 years of age Most likely # of hospitalizations	4,279	7,131	9,984
Range:	792 – 4,671	1,320 – 7,786	1,847 – 10,900
65+ years of age Most likely # of hospitalizations	2,215	3,692	5,169
Range:	1,583 – 2,800	2,639 – 4,667	3,695 – 6,534
Total (All ages): Most likely # of hospitalizations	6,774	11,289	15,805
Range:	2,518 – 8,604	4,198 – 14,341	5,876 – 20,078

Table 3. Estimated Deaths During a Pandemic in Oklahoma (Moderate to Severe) By Attack Rate and Age Group

Age Group	Attack rates		
	15%	25%	35%
0-18 years of age Most likely # of deaths	16	27	38
Range:	9 – 251	16 – 419	22 – 587
19-64 years of age Most likely # of deaths	724	1,207	1,690
Range:	104 – 1,360	173 – 2,266	242 – 3,173
65+ years of age Most likely # of deaths	831	1,385	1,939
Range:	806 – 1,030	1,343 – 1,717	1,880 – 2,404
Total (All ages): Most likely # of deaths	1,571	2,619	3,667
Range:	919 – 2,641	1,532 – 4,402	2,144 – 6,164

Concept of Operations

During a pandemic response, the OSDH will be the lead state agency in a unified command structure. State, tribal, regional, and local organizations will initiate actions as outlined in the *Oklahoma Emergency Operations Plan* and the *OSDH Emergency Response Plan*, as appropriate, to the needed level of response.

The *Oklahoma Pandemic Response 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 *Plan* by an internal workgroup.
2. The OSDH is responsible for the development, regular review, and distribution of a local county template and tribal template and/or guidance.
3. The OSDH Public Health Laboratory is integral in surveillance activities by providing viral isolation, antigen detection by molecular methods, and strain identification of influenza viruses.
4. The Oklahoma Commissioner of Health has the primary authority for direction and supervision of the implementation of the *Plan* components.
5. The OSDH Emergency Preparedness and Response Service (EPRS), along with OSDH Community and Family Health Services (CFHS), will collaborate with partners and stakeholders to develop, gain approval of, and distribute guidance related to local and state responsibilities.

6. The OSDH Office of Communications is responsible for the development, regular review, and distribution of crisis and emergency risk communications that may be utilized during a pandemic.

Roles of the County Health Departments

County health departments are responsible for planning and orchestrating the local response to a pandemic with direction and support 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, medical systems, 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 and novel influenza and pneumococcal vaccination to designated high-risk groups.

2. Meet with key local partners, including tribal entities, and familiarize them with the *Oklahoma Pandemic Response Plan* and the local county plan.

3. Liaison with local and tribal responders (e.g., emergency services, hospitals, schools, physician offices, pharmacies, 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 venues during a pandemic event.

5. Facilitate the development of local contingency/continuity plans for the provision of those quarantined/isolated 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 a pandemic.

7. Assist with disseminating educational materials targeted toward the public regarding a pandemic response.

8. Facilitate liaisons with local county mental health providers to ensure the behavioral health needs of the community are addressed.

Roles of the Federal Government

1. Coordinate national and international surveillance.

2. Conduct epidemiological investigations of novel disease outbreaks 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(s) 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 and Personal Protective Equipment (PPE).
10. Evaluate the efficacy of response measures.
11. Deploy federal personnel, if requested (i.e., Commissioned Corps Readiness Force, Epidemic Intelligence Service Officers, and Indian Health Services).
12. Develop and distribute medical and public health communications.

2016 Oklahoma Pandemic Response Plan

Part II: Ten Essential Elements

Essential Element #1
Command and Management

This element details the command and management of the emergency response infrastructure required throughout the delineated phases of a pandemic following Oklahoma's activation levels outlined in Table 1. The Commissioner of Health will have primary authority for the implementation of the pandemic response activities. The Oklahoma State Department of Health (OSDH) will lead the state response to a pandemic through the existing response infrastructure coordinated through Oklahoma's *State Emergency Operations Plan, Emergency Support Function (ESF) #8: Health and Medical*. The *State Emergency Operations Plan's ESF #8* 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 preparedness for their local jurisdictions. Also in this *Plan*, OSDH will outline procedures for response to health, medical, behavioral health, and environmental needs of the State of Oklahoma in the event of a pandemic.

A. LEVEL 4 - MONITORING

Routine Planning & Day-to-Day Operations

1. The OSDH Emergency Preparedness and Response Service (EPRS) will ensure the *Plan* is developed and integrated into the *OSDH Emergency Response Plan*.

2. The OSDH EPRS will convene an internal committee to review and modify the *Plan* on an annual basis and will ensure the *Plan* is flexible, scalable, and able to address various levels and magnitudes of outbreak severity.

3. The OSDH EPRS 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*, and county emergency response plans).

4. The OSDH will conduct quarterly call-down exercises utilizing the Oklahoma Health Alert Network (OK-HAN) to ensure state and local public health command and general staff, as well as key partners, can be reached.

5. The OSDH EPRS will ensure collaboration with key state, federal, regional, local, and tribal partners, as well as non-governmental and private industry 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. Emergency Medical Service (EMS) Providers,

c. Hospitals,

d. Medical Emergency Response Centers (MERC),

e. Metropolitan and Regional Medical Response Systems,

f. Non-Governmental Organizations,

g. Oklahoma Attorney General's Office,

h. Oklahoma City Area Inter-Tribal Health Board,

i. Oklahoma Department of Agriculture, Food, and Forestry,

j. Oklahoma Department of Emergency Management,

k. Oklahoma Department of Mental Health and Substance Abuse Services,

l. Oklahoma Department of Public Safety,

m. Oklahoma Department of Transportation,

n. Oklahoma Department of Education,

o. Oklahoma Medical Reserve Corps,

p. Oklahoma Military Department,

q. Oklahoma Office of Homeland Security, and

r. Private Industry Partners.

6. The OSDH (state and local) will coordinate and participate in planning, training, and exercise activities with state, local, regional, tribal, and federal agencies and non-governmental organizations as well as private industry partners.

7. 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.

8. The OSDH will provide guidance and a pandemic response template to local and tribal communities to work with partners (i.e., emergency management, public safety, public works, healthcare systems, private organizations, employers, and stakeholder groups) to pre-determine and prioritize essential employees to receive medical countermeasures in a pandemic event.

9. The OSDH will collaborate with the OSDH Office of General Counsel to ensure 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.

10. The OSDH EPRS will continue to train OSDH staff and key partners in the Incident Command System (ICS) according to the National Incident Management System (NIMS). OSDH EPRS will continually work towards NIMS compliance.

11. The OSDH EPRS will maintain an updated, scalable ICS chart in the *OSDH Emergency Response Plan* that pre-identifies command and general staff personnel.

12. The OSDH EPRS will ensure the agency maintains readiness (i.e., pre-identified command and general staff, call-down systems, and communications interoperability) to respond to catastrophic health emergencies by continually reviewing, updating, and testing plans.

Notifications & Awareness

13. The OSDH Office of the State Epidemiologist will provide senior leadership and response partners, timely updates on possible pandemic outbreaks through Senior Advisory Committee meetings, All Hands meetings, email, and other forums.

14. The OSDH ESF #8 Liaison will provide updates on potential pandemic threats to the Oklahoma Department of Emergency Management (OEM).

B. LEVEL 3 – PARTIAL ACTIVATION

1. The State Epidemiologist will convene a meeting with Senior Leadership, the Acute Disease Service (ADS) Director, the EPRS Director, and other key OSDH personnel to brief on the first human case(s) in the U.S. and request activation if necessary.

2. The State Epidemiologist and ADS will monitor CDC and/or Department of Agriculture conference calls relating to the pandemic.

3. The OSDH will send an email alert or voicemail to all OSDH employees updating them on the possible pandemic and provide precautions when travelling in suspected areas.

4. The State Epidemiologist, ADS, and/or Immunization Service, will conduct a video or conference call briefing with county health administrators or send out regular email updates.

5. Local county health administrators will provide updates to school districts and planning partners for awareness and report possible outbreaks back to ADS.

6. Medical Emergency Response Centers will monitor hospital status and report stressed systems to the OSDH Situation Room.

7. The OSDH will remain at Level 3 – Partial Activation if the severity of the pandemic is low and routine surveillance and disease control activities are sufficient. (For less severe pandemics, the State Epidemiologist and ADS epidemiologists will continue monitoring

the situation and the OSDH will operate under Level 3 – Partial Activation conducting normal business activities.)

C. LEVEL 2 (1) –FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

OSDH Activation

1. The Commissioner of Health will formally declare and designate in writing a Public Health Incident Commander. Upon designation from the Commissioner of Health, the Incident Commander will activate emergency operations and conduct an Initial Briefing with Command & General Staff.

2. The NIMS-compliant ICS structure at the State level will expand as necessary to plan for, support, and respond to a pandemic.

3. The OSDH will collaborate with partners to activate local level NIMS-compliant ICS structures to respond to a pandemic (to include local county health departments, Metropolitan/Regional Medical Response Systems, and hospitals).

Additional Support (includes State Emergency Management activation and/or Federal assistance)

4. The OSDH will assign ESF #8 Liaison Officer to the State Emergency Operations Center (EOC) who will coordinate resources and requests in concert with the OSDH Situation Room if severity of the pandemic warrants activation of the State Emergency Operations Center.

5. The Commissioner of Health, in coordination with OEM, will seek gubernatorial declaration and request activation of *Oklahoma's Catastrophic Health Emergency Plan* if severity of the pandemic warrants.

6. The OEM will notify all necessary state government officials of the potential need for additional monetary, logistical, or personnel resources to adequately respond to a possible pandemic crisis.

7. The OEM will coordinate activation of local emergency management agencies, as necessary.

8. The OSDH will schedule routine operations briefings via conference call or video-conferencing capabilities for all partners and key personnel.

9. 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 the *Oklahoma State Emergency Operations Plan, ESF #8* and the *OSDH Emergency Response Plan* if severity of the pandemic warrants.

D. DEMOBILIZATION

1. The OSDH Situation Room will stand down emergency operations upon written declaration by the Public Health Incident Commander.

2. The OSDH will analyze all activated elements of the *Emergency Response Plan* including applicable annexes and prepare a draft After Action Report/Improvement Plan (AAR/IP) within 60 days from the deactivation of the OSDH Situation Room.

3. The OSDH will review gaps identified in the AAR/IP and implement improvements identified into future revisions of the *Plan*.

4. The OSDH will continue to coordinate planning activities with state, local, regional, tribal, and federal agencies and non-governmental organizations to test jurisdiction-specific response plans to ensure integration and interoperability during future events.

Essential Element #2
Surveillance and Laboratory Diagnostics

This element describes surveillance and laboratory diagnostic infrastructure and actions required throughout the delineated phases of a pandemic. The Oklahoma State Department of Health (OSDH) Acute Disease Service (ADS) in cooperation with the Public Health Laboratory (PHL) assumes primary responsibility for conducting influenza surveillance. The Oklahoma influenza surveillance system routinely receives information and specimens from sentinel physicians and laboratories. The PHL, a member of the Laboratory Response Network (LRN), provides viral diagnostic testing and augments with new capabilities as available. The ADS epidemiologists provide weekly analysis and reports of surveillance data and investigate case clusters of respiratory disease following procedures outlined in the *OSDH Epidemiologic Follow-up of Communicable Diseases in Oklahoma Manual* (also known as *The Epi Manual*). The State Public Health Veterinarian, ADS, and the PHL will continue ongoing efforts to integrate animal and public health surveillance systems with the Oklahoma Animal Disease Diagnostic Laboratory and the Oklahoma Department of Agriculture, Food, and Forestry (ODAFF).

A. LEVEL 4 - MONITORING

Routine Planning & Day-to-Day Operations

1. The OSDH PHL will continue to conduct virologic surveillance to include the following capabilities:

    a. Maintain a relationship with the Influenza Division of the Centers for Disease Control and Prevention (CDC) to ensure availability of influenza diagnostic reagents and competency to perform influenza reference laboratory testing.

    b. Receive specimens from sentinel laboratories, the Office of the Chief Medical Examiner (OCME), sentinel physicians, and other healthcare providers during a respiratory disease outbreak investigation or enhanced surveillance activities, 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. As a member of the LRN, the PHL has reagents to identify H5N1 Asian lineage 1 and 2 avian influenza viruses, the 2009 A H1N1 influenza virus, and H3 viruses by RT-PCR testing. In May 2013, the PHL received a RT-PCR diagnostic testing kit to detect human infections with the novel influenza A (H7N9) virus. Reagents for future identified novel strains will be requested as they become available through the CDC.

    d. Ensure surge capacity and maintain 3 cell lines and 25 cultures of each cell line weekly for viral isolation and identification. The PHL will maintain the capability to test 200 specimens by RT-PCR per week.

e. Conduct preparedness planning to support the response to a severe epidemic or pandemic (may include purchase of equipment and surge supplies, cross-training personnel, and alerting laboratory partners of future needs).

f. Ensure compliance with annual proficiency testing according to operational procedures outlined in the *Public Health Lab Resource Manual*.

g. Ensure adherence to biosafety containment and bio-monitoring protocols (any illness that may occur in laboratory personnel will be promptly reported to the ADS Epidemiologist-on-Call and investigated for the potential of laboratory-acquired transmission).

h. Verify methods are in place to provide frontline clinicians and referral laboratories with protocols and/or training on safe specimen collection, testing, labeling, and transportation of specimens to the PHL; surveillance for influenza like-illness (ILI) among laboratory personnel; and management of respiratory specimens during a pandemic. Guidance on packaging specimens for transport and submission of requisition forms will be distributed to laboratories and healthcare providers and is available online in the *Public Health Lab Resource Manual, Section H* (www.ok.gov/health/Disease,_Prevention,_Preparedness/Public_Health_Laboratory/Services/Resource_Manual_Index/).

i. Participate in the World Health Organization (WHO) virologic surveillance system by submitting viral isolates to the CDC for viral sub-typing and antiviral resistance monitoring.

2. The OSDH ADS will conduct disease-based surveillance to include the following:

a. Enhance and manage the Oklahoma Viral Respiratory Illness Sentinel Surveillance System. The OSDH ADS sentinel surveillance coordinator will identify clinicians to serve as outpatient sentinel providers to report the proportion of outpatient visits for ILI at least weekly and submit clinical specimens for testing at the PHL on a year-round basis. The surveillance coordinator will also identify sentinel laboratories to report influenza and other viral respiratory pathogen test results weekly and submit clinical specimens to the PHL for testing on a year-round basis. The ADS will ensure two epidemiologists are also trained to maintain sentinel surveillance activities.

b. Receive reports from sentinel physicians regarding the proportion of patients presenting with ILI by age group each week. The ratio of sentinel physicians to total Oklahoma population will continue to surpass the CDC recommended ratio of 1:250,000 total populations. ILI data will be compiled at least weekly to quantitatively and qualitatively assess the data and characterize influenza activity. Data will then be submitted electronically to the data repository at the CDC, as part of the U.S. Sentinel Physicians Surveillance Network (ILI-Net). Sentinel physicians will also be encouraged to obtain and submit samples of respiratory specimens to the PHL for virologic testing.

c. Continue to utilize an influenza aggregate reporting screen in Oklahoma's secure, web-based Public Health Investigation and Disease Detection in Oklahoma (PHIDDO)

system for viral respiratory illness surveillance. The aggregate report screen for ILI surveillance is used by sentinel providers for data collection, including the number of patients meeting ILI criteria by age group, total number of patients evaluated by age group, number hospitalized, number of positive rapid influenza tests, and the total number of rapid tests performed during the report period. Sentinel laboratories access the PHIDDO sentinel laboratory report screen to enter weekly reports on the total number of tests performed and number of positive tests for influenza viruses, respiratory syncytial viruses, adenoviruses, and parainfluenza viruses. This information is evaluated at least weekly to monitor epidemiologic patterns and trends of viral respiratory illnesses in Oklahoma.

d. Work with the PHL to provide and distribute viral transport media and rapid influenza test kits to participating sentinel physicians to facilitate and expedite submission of respiratory specimens to the PHL for RT-PCR, culture, and identification.

e. Continue surveillance for influenza-related mortality among children. Influenza-associated pediatric death is a reportable condition in Oklahoma (Oklahoma Administrative Code 310:515). The ADS will collect epidemiologic information (demographics, clinical information, and pathology findings) for pediatric influenza mortality surveillance and report case information to the CDC via the National Notifiable Diseases Surveillance System.

f. Monitor the occurrence of acute respiratory disease outbreaks in collaboration with county health departments, local healthcare providers, and tribal facilities, and train county health department personnel in surveillance and investigation methods to respond to respiratory illness outbreaks in a variety of settings (i.e., schools, daycares, and nursing homes).

g. Compile and analyze virologic and disease-based surveillance data at least weekly to quantitatively and qualitatively assess the data and characterize influenza activity in Oklahoma. ILI-Net data and the state's overall influenza activity level will be submitted electronically to the CDC per the standard national reporting schedule.

h. Collaborate with public health partners to collect and evaluate data from volume-based systems including the Tulsa Area Syndromic Surveillance System (TASSS), Oklahoma County Health Alert System (OCHAS), FirstWatch®, and EMResource® to monitor the seasonal impact of influenza.

i. Analyze and prepare weekly reports of influenza surveillance data and make the reports available to laboratories, county health departments, tribal facilities, healthcare providers, hospital infection preventionists, and the general public. These weekly data reports are accessible on the Oklahoma Influenza Surveillance website (http://www.ok.gov/health/Disease,_Prevention,_Preparedness/Acute_Disease_Service/Seasonal_Disease_Topics/Seasonal_Influenza_Information/). Notifications related to influenza activity or unusual infectious disease situations are reported to physicians, infection control preventionists, tribal facilities, and county health department personnel through the Oklahoma Health Alert Network (OK-HAN) system.

j. Share information with epidemiologists and public health professionals in other states regarding the detection and circulation of influenza viruses in Oklahoma using the CDC Epi-X Exchange and other communications methods.

3. The ADS will receive reports year round of suspected novel infections-associated deaths from the OCME as well as from hospitals, pathologists, and other health care providers. ADS will coordinate specimen collection for RT-PCR, viral culture, and other diagnostic testing as appropriate at the PHL. The ADS will collect epidemiologic information (i.e., demographics, clinical information, and pathology findings) for novel infections surveillance and may conduct an investigation to gather additional information about the case and to institute countermeasures for exposed contacts. If warranted, ADS epidemiologists will coordinate collection of tissue samples and other clinical specimens for additional testing at CDC. PHL test results will be reported to the ADS and OCME.

4. The OSDH Public Health Veterinarian will perform the following activities:

   a. Monitor outbreak occurrences 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 ODAFF State Veterinarian 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. Work with federal and state agencies to coordinate surveillance for zoonotic influenza transmission and to develop an integrated communication and response plan congruent with the threat of a particular circulating animal or human influenza virus.

Notifications & Awareness

5. The OSDH Public Health Veterinarian will report premises where swine were housed and a person with laboratory-confirmed infection with an unsubtypable influenza virus or novel swine-origin influenza A virus had potential contact with swine to the Office of the State Veterinarian at the ODAFF for animal health investigation.

6. The OSDH ADS and PHL will provide updates of outbreaks in multiple foreign locations to sentinel surveillance partners utilizing the OK-HAN.

B. LEVEL 3 – PARTIAL ACTIVATION

1. The OSDH ADS and PHL will conduct the following activities as the threat and/or severity for sustained human-to-human transmission of a novel infectious agent is raised:

   a. Monitor reports regarding virologic, epidemiologic, and clinical findings associated with activity of the novel strain in foreign countries.

   b. Work with clinical and hospital laboratories to address laboratory surge capacity issues.

c. Enhance disease-based surveillance by requesting healthcare providers and laboratories submit respiratory specimens to the OSDH PHL from suspect patients. Suspect patients include those presenting with ILI and having recently traveled to a country or region where the novel infection has been identified or those presenting with unusually severe acute respiratory symptoms regardless of their travel history.

d. 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 PHL, the results will be rapidly reported to key OSDH personnel via phone (through updated call trees) and posted on the Laboratory Information Tracking System. Laboratory confirmation and any necessary epidemiologic investigations will be coordinated with the State Epidemiologist and the CDC.

e. Ensure diagnostic testing proficiency and adherence to biosafety containment and bio-monitoring protocols as part of the standard PHL procedures.

f. Provide protocols, situation updates, and/or additional training to frontline clinicians and hospital laboratory personnel on safe specimen collection, testing, labeling, and transportation of specimens to the PHL; surveillance for ILI among laboratory personnel; and management of clinical specimens during a pandemic. Referral laboratories will be instructed to report development of a febrile respiratory illness in any laboratory personnel to the ADS for epidemiologic investigation.

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION

OSDH Activation

1. The OSDH will assess current needs and modify routine activities to address pandemic 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 reassign epidemiologic and clerical personnel from other programmatic areas for the pandemic response.

2. The OSDH ADS will investigate the initial case(s) of disease due to a novel infectious agent in collaboration with county health department personnel, if, and when, the following are met:

   a. Notification of a suspect case of novel illness meeting the appropriate travel, clinical, and/or epidemiology criteria or

   b. Identification of a novel agent by the PHL.

3. The PHL will provide requisitions, swabs, and viral transport media for specimen collection and facilitate courier transport of specimens.

4. The PHL will perform influenza screening by RT-PCR testing. A systematic sample of specimens will be set up for viral culture and isolation for additional viral characterization, such as viral sequencing and antiviral susceptibility. The ADS will receive timely

notification of RT-PCR and viral culture results from the PHL to monitor the relative burden and distribution of seasonal and novel influenza viruses in Oklahoma.

5. The PHL will submit influenza virus isolates, other pandemic-specific isolates, or clinical specimens to CDC according to their pandemic protocols for contribution to national surveillance and further antigenic characterization.

6. The ADS will conduct novel agent surveillance activities, including participation in case-based or aggregate reporting to CDC for national surveillance efforts provided they can be conducted without further compromise of existing limited resources.

7. Upon identification of the first novel agent infection(s) among Oklahoma residents, ADS epidemiologists will rapidly partner with county health department personnel to conduct case investigation and contact management. Public health nurses may be requested to assist with active or passive monitoring of contacts to determine if there is a change in their health status. Providing the suspect case does not require hospitalization, home isolation will be recommended. In the event of a highly virulent pandemic virus, the suspect case-patient may be issued a formal isolation order by county health department personnel under the direction of the State Epidemiologist and Commissioner of Health for the recommended isolation period for the circulating novel agent or pandemic influenza strain. Contact tracing and quarantine methods are further addressed in Essential Element #6, Community Disease Control and Prevention.

8. The OSDH Public Health Veterinarian will rapidly notify the ODAFF if the case(s) involved contact with poultry or swine, depending on the nature of the pandemic virus strain, and provide the location of the animals suspected to be the source of exposure or at risk of developing influenza from contact with a person infected with the novel influenza virus strain.

9. The ADS will expand surveillance of hospitalized and fatal cases attributed to complications associated with a pandemic agent and assess other sequelae or conditions through increased communications with hospital infection control personnel and the OCME. OSDH may use multiple systems to collect data on novel agent-associated hospitalizations, pneumonia, and deaths, including the PHIDDO system or EMResource®. The PHIDDO system will be the primary system used to receive individual case reports of pandemic-associated hospitalizations and deaths from hospitals. EMResource® may be used to gather additional patient visit information from hospital emergency departments for surveillance or response efforts.

10. The OSDH EPRS and the Emergency Systems Division will identify a schedule to gather data and other pertinent information from hospital capacity reports and report status to key local, regional, tribal, state, and federal organizations or persons. This is to ensure minimal requests are made of hospital personnel.

11. The OSDH Commissioner of Health, under existing state laws, may make novel influenza or illness caused by any emerging infection a reportable condition in Oklahoma by emergency declaration. This type of declaration requires healthcare providers and

hospitals to report all associated deaths and hospitalizations for the purpose of public health surveillance and/or special study.

12. The OSDH ADS will obtain death certificate information on persons who died of suspected or laboratory-confirmed pandemic-related causes.

13. The OSDH PHL will prioritize specimens for testing, according to the epidemiologic and medical information provided, if the demand for diagnostic testing overwhelms PHL capacity and personnel resources.

14. The ADS 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. Monitor surveillance reports from the WHO and the CDC on national and international morbidity and mortality rates.

    d. 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.

    e. Facilitate collaboration between the OSDH and CDC regarding the need for any special studies such as vaccine efficacy, antiviral drug resistance, healthcare transmission, or others that could be conducted without further compromising existing limited resources.

Additional Support (includes State Emergency Management activation and/or Federal assistance)

15. The OSDH ADS will work closely with the OCME, acute care hospitals, and pathologists to augment the existing infectious disease mortality surveillance system to monitor pandemic-related deaths. Contingent on caseload and resource prioritization, the OCME will continue to collect specimens for viral culture, isolation, and identification at the OSDH PHL.

D. DEMOBILIZATION

1. The ADS will evaluate the strengths and weaknesses of disease-based and virologic surveillance efforts implemented during each phase of the pandemic.

2. The ADS will perform a detailed retrospective characterization of the pandemic in Oklahoma, evaluating the overall morbidity and mortality.

3. The ADS will resume routine infectious disease surveillance, including the seasonal influenza activities as described in LEVEL 4 - MONITORING implementing any necessary modifications.

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 a pandemic. The vaccine to be used for a pandemic response will likely not be available until several months have elapsed from the first identification of human infections with a novel influenza virus or other pandemic agent. Once vaccine is available, deliveries of the vaccine may be made to multiple locations across the state in direct coordination with local county health departments following the *Oklahoma Strategic National Stockpile (SNS) Plan* options for distribution.

A. LEVEL 4 - MONITORING

Routine Planning & Day-to-Day Operations

1. The Oklahoma State Department of Health (OSDH), in collaboration with county health departments and private providers, will maximize influenza vaccination rates during normal flu seasons in all high-risk populations including those for whom, historically, the rate of vaccination is low (i.e., minorities, healthcare workers, and persons with chronic disease).

2. The OSDH Immunization Service will ensure vaccine storage, handling, equipment, and supplies are available for pandemic vaccination distribution. 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.

3. The OSDH EPRS will investigate the need for additional agreements; however, mass medical countermeasure plans exist for the entire state. These plans include agreements with many community partners incorporated into local Push Partner plans.

4. The OSDH Immunization Service and the OSDH Health Information Exchange Steering Committee will ensure the Oklahoma State Immunization Information System (OSIIS) is configured to collect relevant demographic, vaccine, and clinical data for inventory control and tracking. Procedures will also be enhanced to collect information on possible adverse events and create a method to identify individuals who need to be recalled for second immunizations as may be recommended by the Advisory Committee on Immunization Practices (ACIP) or vaccine manufacturer (recall efforts will include the OSDH Office of Communications to utilize media releases as a primary communication method).

5. The OSDH Immunization Service will use the CDC Vaccine Information Statement detailing the risks and benefits of the influenza vaccine as part of an ongoing seasonal flu public health communications program.

Notifications & Awareness

6. The OSDH Immunization Service will participate in CDC-sponsored conference calls and webinars to obtain the most current information about the projected timing and availability of pandemic vaccine and communicate this information to the appropriate OSDH Leadership (or Command and General staff if public health emergency operations have been activated).

B. LEVEL 3 – PARTIAL ACTIVATION

1. In preparation for vaccine receipt and distribution, the OSDH will review the vaccination Priority Groups (see Appendix B) set forth by national guidance (i.e., CDC, ACIP), and recommend the best overall strategy incorporating state surveillance information.

2. The OSDH and county health departments 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 C).

3. The OSDH will ensure contingency plans have been considered for emergency distribution of unlicensed vaccine using Emergency Use Authorization (EUA) provisions, including the provision of Investigational New Drug (IND) forms to be used upon vaccine administration, implementing strict inventory control and record keeping, completing signed consent forms, and monitoring adverse events.

4. 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.

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

OSDH Activation

1. The OSDH will conduct the following actions upon expectation of vaccine availability:

   a. Notify OSDH administrative districts to plan for vaccine allocation in their district and provide support and coordination for allocation. The decision to fully activate Mass Immunization Prophylaxis Strategy (MIPS) plans or a limited response will be based on availability of vaccine supply, targeted groups to receive the vaccine, type of vaccine product, and severity of the pandemic.

   b. Review, update, and implement Strategic National Stockpile (SNS) distribution plans according to federal distribution options (i.e. direct shipment), vaccine availability, and timetable.

   c. Coordinate distribution and signing of federal agreements as needed for the pandemic response, such as vaccine receipt agreements for private vaccine providers and pharmacies.

   d. Assess internet connectivity and the necessary number of terminals each immunization clinic site will need to successfully implement vaccine administration, vaccine record

data collection, and vaccine inventory management. Local county health departments may consider using Technology Centers or other off-site facilities that have multiple computers for data entry.

e. Provide updated copies (electronic or hardcopy) of Vaccine Information Statements and the Pandemic Vaccine Administration form to vaccine providers (i.e. county health departments, hospitals, physicians' offices, and pharmacies).

f. Ensure vaccine storage sites have 24-hour security that coincide with the level of severity of the pandemic and the assessed threat of actions that may be undertaken by the general population. At a minimum, the vaccine will be stored in secured rooms in refrigerators with continuously recording thermometers.

g. Ensure vaccine transport includes available security as described in the *State SNS Plan* and local MIPS plans if the severity of the pandemic and assessed threat of the general population warrants.

h. Work with the Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS) to ensure the psychological needs of individuals are addressed to minimize the fear and anxiety related to not being able to access pandemic vaccine during the early distribution tiers.

2. The OSDH Immunization Service, including all local Immunization Field Consultants (IFCs), will coordinate the following activities:

   a. Provide a daily physical inventory of pandemic vaccine quantities on hand and tally of doses administered. In the early phases of vaccine distribution, electronic inventory data should be followed up with a routine hand count that is independent of the collection of vaccine administration data being entered into OSIIS.

   b. Provide clinic information for dissemination to include clinic locations and other operational details.

   c. Provide quality assurance oversight of ongoing receipt, storage, security, allocation, distribution, and administration of pandemic vaccines.

   d. Assist with pandemic vaccine redistribution to other county health department administrative regions or other providers, as needed, to ensure coverage of targeted priority groups before advancing to next vaccination tier.

   e. Ensure, in coordination with Office of Management and Enterprise Services (OMES), pandemic vaccine data can be entered into OSIIS within 24 hours to facilitate vaccine inventory control. In addition, OSIIS must be constructed to collect vaccine administration record information in the needed fields.

   f. Provide training and guidance materials for clerical personnel who may be deployed to assist with OSIIS data entry at clinic locations.

g. Identify a vaccine safety coordinator and provide timely follow-up and investigation of serious vaccine adverse events reported by Oklahoma healthcare providers to the Vaccine Adverse Events Reporting System (VAERS).

h. Communicate guidance received from the CDC and the Food and Drug Administration (FDA) on meeting IND) and EUA requirements (as applicable) and ensure that the appropriate patient consent forms are obtained at all vaccination clinic locations. Signed patient consent forms will be maintained according to protocols approved by the Incident Commander.

i. 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 use of vaccine adjuvants, proper child restraint practices, and injection safety.

Additional Support (includes State Emergency Management activation and/or Federal assistance)

3. County health departments will increase interactions with private and public partners located within their jurisdiction to develop plans for immunization clinics, absenteeism reporting, outreach, and possible closure or suspension of extra-curricular activities. Depending on the epidemiology of the pandemic these partners may include:

   a. Schools,

   b. Higher Education Facilities,

   c. Daycares,

   d. Long Term Care Facilities, and

   e. Businesses

D. DEMOBILIZATION

1. The OSDH, in collaboration with county health departments, will assess vaccination coverage of different populations to determine subpopulations with acceptable uptake of pandemic vaccine and subpopulations that still need targeted outreach for receipt of pandemic vaccinations.

2. The OSDH, in anticipation of successive pandemic waves, will continue statewide surveillance and vaccination programs to ensure every eligible Oklahoman who wishes to receive a pandemic vaccination has access.

3. The OSDH will monitor vaccine expiration and provide instructions to providers to either return or dispose of expired vaccine.

Essential Element #4
Acquisition and Delivery of Antiviral Medications

This element details the mechanisms for delivery of antiviral drugs, which is a critical component of the emergency response infrastructure required throughout the delineated phases of an influenza pandemic. Similar strategies for emergency acquisition and distribution of a medical countermeasure are likely to be implemented during other types of a national or global infectious disease outbreak.

Two antiviral agents are FDA-approved for prophylaxis or treatment of Influenza A. 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 ideally initiated within 48 hours of onset of symptoms, but may provide benefits to patients at high risk of influenza-related complications even when initiated later than 48 hours post-onset. Treatment with an antiviral drug 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, widespread oseltamivir resistance of seasonal influenza A (H1N1) viruses during the 2008-2009 seasons raises the concern about rapidly evolving neuraminidase-resistant viral strains once a newly appearing influenza virus begins to circulate widely. Clinician information about use of antiviral medications for the treatment of seasonal influenza is available at: http://www.cdc.gov/flu/professionals/antivirals/. Interim guidance on the use of antiviral agents for treatment of human infections with avian influenza A (H7N9) can be accessed at: http://www.cdc.gov/flu/avianflu/hrn9-healthprofessionals.htm.

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. HHS intends to hold these antiviral medications in the Strategic National Stockpile (SNS) for release to states and other eligible entities in accord with their respective populations. Oklahoma's listed SNS allotment, effective September 1, 2008, is 522,543 five-day treatment courses. Approximately 25% of the state's antiviral allocation in the SNS was forward deployed in late April 2009 as part of the national response to the emergence and international outbreak of a novel swine-origin influenza A (H1N1) virus. These federal antiviral assets remain in Oklahoma's possession for release as deemed necessary or until expiration of the drugs.

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 had 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 detailed in the federal contracts, which stipulate 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 were placed on behalf of other preparedness partners. An additional antiviral asset is being managed by the Metropolitan/Regional Medical Response Systems. Both state and local assets will be maintained until expiration of each countermeasure.

A. LEVEL 4 – MONITORING

1. ***Routine Planning & Day-to-Day Operations*** The OSDH Emergency Preparedness and Response Service (EPRS) will maintain an inventory list of all state-stockpiled assets which will be periodically inventoried for tracking of expiration dates and eligibility for the U.S. Food and Drug Administration (FDA) shelf-life extension program.

2. The OSDH will review annually and revise as needed the *Oklahoma SNS Plan* and Mass Immunization Prophylaxis Strategy (MIPS) plans to ensure the following:

   a. Antiviral distribution components are updated and all partners are aware of the updates.

   b. Receipt and storage of federal assets will occur at a pre-approved SNS warehouse location until the distribution plan is activated.

   c. Inventory, tracking, and delivery of antivirals may be conducted through existing *SNS Plan* protocols.

Notifications & Awareness

3. The OSDH EPRS will notify OSDH Senior Leadership if the federal SNS program announces shipment of assets to states.

B. LEVEL 3 – PARTIAL ACTIVATION

1. The OSDH adopted the Antiviral Drug Priority Group Recommendations set forth in the HHS Pandemic Influenza Plan and estimated Oklahoma populations (see Appendix D) for allocation of antivirals. OSDH will create and maintain more detailed allocation schemes because the breadth of the interim HHS recommendations on priority groups for antiviral treatment and prophylaxis may be too inclusive and exceed the availability of antivirals. Furthermore, definitions for priority groups such as public safety workers, essential service providers, and key decision makers will need to be more clearly defined based on the unique epidemiologic features of the pandemic. The more defined allocation schemes include:

   a. Initial Containment Allocation – apportionment to select hospitals without an adequate supply of antivirals to treat affected patients and direct contacts. County health department strike teams will also receive an apportioned amount to deliver to direct contacts of affected hospitalized patients.

   b. Hospital Allocation – apportionment to hospitals without an adequate supply of antivirals for patient treatment and healthcare workforce support.

c. School-aged Children Allocation – apportionment of applicable medical countermeasures to county health departments to provide to children under the age of 18 that may be extremely susceptible to contracting and communicating the virus. County health department strike teams will work with local school districts to obtain consent from parents and offer flu clinics during school hours. Pediatric physicians' offices may also receive an apportionment for their patients to alleviate some of the administration from the county health department.

d. Essential Personnel Allocation – apportionment to select agencies for allocation to state & local personnel responsible for maintaining critical functions.

e. Functional Needs Allocation – apportionment to county health departments, federally qualified health centers, hospitals, physicians' offices, or pharmacies for allocation to ambulatory patients who cannot afford the medication for treatment or prophylaxis.

f. Supply and Demand – apportionment to county health departments, federally qualified health centers, hospitals, physicians' offices, or pharmacies that do not have adequate supply for any ambulatory patient.

2. The Office of the State Epidemiologist shall conduct the following pre-event planning activities:

   a. Ensure Investigational New Drug (IND) or Emergency Use Authorization (EUA) protocols are communicated to healthcare providers and incorporated into response operations.

   b. Estimate the amount of antiviral drugs needed to maintain essential services in Oklahoma (see Appendix C and D).

   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 E).

   e. Produce and revise drug information sheets to meet anticipated needs, including the need for translation into other languages.

   f. Monitor future federal decisions and guidance regarding influenza antiviral drugs to modify this *Plan* as appropriate.

3. The OSDH will utilize the state-managed stockpile of antivirals during the initial containment phase of a pandemic. Depending on the location of the first identified cases in Oklahoma 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 warehouse or hospital located closest to the site of containment efforts (Initial Containment Allocation).

a. As acute disease epidemiologists and public health nurses identify contacts, those individuals will be directed to a designated Point of Dispensing (POD) (which could be the local county health department) to obtain antivirals.

b. County health departments' plans may include strike teams to deliver the medication directly to residences, particularly when a quarantine order is issued.

c. Non-pharmaceutical community containment strategies will be employed concurrent with the antiviral distribution. (See Appendix H)

d. The Initial Containment Allocation strategy will only be applicable during the very early phases of a pandemic.

4. The county health departments will distribute antivirals to critical care hospitals, including Indian Health Service (IHS) and tribal hospitals throughout Oklahoma. Antiviral medications will be distributed to hospitals for treatment of patients at high risk of complications from influenza and possibly for prophylaxis of front line healthcare workers and their families (dependent on supplies). 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 to achieve maximum utilization of state resources. The hospital distribution process will include:

   a. Transmitting a signed Memorandum of Understanding (see Appendix F) to public health in advance of antiviral delivery or pickup.

   b. Requiring pre-identification or advance transmittal of a photo ID of the person(s) authorized to pick up or receive antiviral supplies, and their estimated time of arrival if a hospital arranges for a pickup of medications from a MIPS or local county health department storage 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 F).

   f. Designating 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 significant adverse events related to antiviral use to the FDA (http://www.fda.gov/Safety/MedWatch/default.htm) and electronically to the designated OSDH Countermeasure and Response Administration (CRA) system or by telephone to the Acute Disease Service Epidemiologist-on-Call, Office of the State Epidemiologist, or to the OSDH emergency phone bank (if activated).

i. Reporting any evidence of antiviral drug resistance to the OSDH Acute Disease Service and/or Office of the State Epidemiologist.

j. Maintaining records and tracking dispensation of all antiviral inventories by prescription, disposal, loss, reallocation, or return to the OSDH.

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

OSDH Activation

1. The OSDH will review and incorporate priority group recommendations from the CDC and also take into account the following planning assumptions related specifically to antiviral allocation schemes used during a moderate to severe pandemic.

   a. The expected supply of antiviral medications may be well below the demand during a severe pandemic.

   b. The availability of antiviral drugs through usual channels, i.e., retail pharmacies and pharmaceutical distributors, may be significantly interrupted during a pandemic.

   c. Reports of adverse effects from antiviral medications may be more prevalent during a pandemic and range from mild gastrointestinal upset to significant neurological symptoms.

   d. The advantages of using the antiviral medications for prophylaxis may be outweighed by the need for treatment use.

   e. Traditional delivery mechanisms may need to be redesigned to safely dispense medications to targeted priority groups.

2. OSDH will request assets from the SNS according to the *Oklahoma SNS Plan.*

   a. Requests from hospitals, county health departments, or governmental agencies for re-supply or additional antiviral drugs will be processed through the OSDH Situation Room following the *Oklahoma SNS Plan.*

3. 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 a memorandum of agreement with OSDH regarding the storage location, security, and use prior to receipt of the antivirals.

4. The OSDH and its partners will develop an Allocation Plan. This plan will:

   a. Incorporate CDC's recommendations for prioritization.

   b. Update Oklahoma's *Catastrophic Health Emergency Plan* to address continuity of government during an influenza pandemic.

   c. Identify a mechanism to compile a statewide list of essential personnel.

d. 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 C for examples).

e. Apportion antivirals as described under Partial Activation above. This allocation plan will be dependent on available commercial resources and severity of the pandemic.

f. Require implementation of transportation and security (if a security threat is anticipated) procedures described in the *Oklahoma SNS Plan* and local MIPS plans.

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 will review distribution options outlined in the *Oklahoma SNS Plan* and implement according to the severity of the pandemic.

Additional Support (includes State Emergency Management activation and/or Federal assistance)

7. The OSDH will work with the Oklahoma Department of Emergency Management to implement the more advanced distribution schemes according to the severity of the pandemic.

   a. The Department of Public Safety will provide security (if a security threat is anticipated during distribution).

   b. The OSDH will require implementation of security procedures outlined in local MIPS plans (if a security threat is anticipated during distribution).

8. The OSDH and the Oklahoma Department of Mental Health and Substance Abuse Service (ODMHSAS) will assist in coordinating behavioral health support in the community related to distribution of antiviral drugs and other countermeasures.

D. DEMOBILIZATION

1. The OSDH Pharmacist and Receiving, Staging, and Storing (RSS) Warehouse Manager will ensure the inventory of any remaining antivirals and reconcile records as part of the OSDH demobilization efforts.

2. The Office of the State Epidemiologist will consult with OSDH Senior Leadership to determine the urgency for restocking the depleted state antiviral medication stockpile contingent on available resources.

3. The OSDH will make plans to reclaim unused antiviral medications or provide instructions to local county health departments for storage and/or destruction of antiviral medications.

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 a pandemic. Emergency operations plans are required by all state, tribal, and local governments and hospitals to address "all hazards." However, if a pandemic occurs, it is likely to pose unique challenges that will overwhelm the healthcare system. Each county should incorporate a pandemic management plan into its local emergency operations plan that is congruent with *Oklahoma's Pandemic Response Plan.* Key personnel most likely to be exposed to a pandemic infectious agent 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 a pandemic on these personnel has the potential to negatively impact the infrastructure for critical community services due to widespread absenteeism in the workforce.

A. LEVEL 4 - MONITORING

Routine Planning & Day-to-Day Operations

1. The OSDH will maintain the Oklahoma Medical Reserve Corps' (OKMRC) Emergency System for Advance Registry of Voluntary Health Professionals (ESAR-VHP) system which includes, but is not limited to:

    a. Physicians,

    b. Nurses,

    c. Mental health professionals,

    d. Nursing assistants,

    e. Physician assistants,

    f. Veterinarians,

    g. Allied health professionals, and

    h. Non-medical support volunteers.

2. The OSDH EPRS and the OSDH Emergency Systems Division will maintain, monitor, and exercise a system (EMResource®) to collect an inventory or appropriate listing which may include, but is not limited to, the following items:

    a. Hospital bed capacity,

    b. Estimated surge capacity,

    c. Intensive care unit/critical care capacity,

d. Hospital emergency department status,

e. Estimated amount of available personal protective equipment, and/or

f. Estimated numbers of ventilators operational in hospitals.

3. The OSDH will conduct planning with medical system partners related to:

   a. Availability of antibiotic medications to treat secondary bacterial pneumonia.

   b. Availability of antiviral medications for treatment and prophylaxis according to allocation and distribution algorithms outlined in Element #4.

   c. Adequacy of alternate care centers that may be needed during severe pandemics.

   d. Adequacy of social and psychological services for families of victims.

4. The OSDH will develop and conduct appropriate training/exercises for the public health workforce and response partners. Such exercises will test public health all-hazards response 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.

5. The OSDH will utilize the Oklahoma Health Alert Network (OK-HAN) to provide routine updates to hospitals and healthcare providers to ensure a communications system is available to reach responders during a pandemic.

6. The OSDH EPRS will continue to work with medical system partners (i.e., Metropolitan Medical Response System, Regional Medical Response System, and Regional Medical Planning Groups) and tribal entities to develop operational plans that address essential elements of response plans.

7. The OSDH EPRS will continue to work with medical system partners and county health departments to include functional needs populations in planning efforts. A guidance document will be maintained for local responders to plan and respond to functional needs populations.

8. The OSDH will consult with healthcare partners (through the existing Senior Advisory Committee) to share needs, expectations, and identified gaps gleaned from local assessment data.

9. The OSDH EPRS will maintain a system for obtaining information related to the use and need of critical equipment (such as ventilators) and other medical supplies necessary to respond to a pandemic.

B. LEVEL 3 – PARTIAL ACTIVATION

1. The OSDH will ensure coordination with each Multi-Agency Coordination System [which includes the Medical Emergency Response Centers (MERCs)] to assess the needs of the healthcare system within each region.

2. The OSDH Acute Disease Service (ADS) will ensure surveillance activities as outlined in Element #2 are coordinated with health systems and emergency response partners.

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

OSDH Activation

1. The OSDH will integrate key medical response partners [i.e. Metropolitan Medical Response Systems, Medical Emergency Response Centers (MERC), Oklahoma Medical Reserve Corps (OKMRC), Intertribal Health Board, Indian Health Service, etc.] into the ICS where appropriate.

2. The OSDH will implement a communications plan to ensure ongoing transmission of vital information to hospitals, emergency medical systems, and other health system providers. The OSDH communications plan will utilize a variety of redundant communications technologies including: email, secure web-based, landline, fax, radio (800 MHz, HEAR, HAM, HF, VHF), and satellite phones.

3. The OSDH will encourage "in-home" patient care for individuals who do not require hospitalization. The following steps may be taken if needed to maximize the ability of family members to care for sick at home as outlined in Element #6: Community Disease Control and Prevention:

   a. Create and distribute 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 OSDH personnel resource needs and activate the OKMRC if needs increase.

   e. Work with state medical associations to identify community-based physicians available to perform "house calls".

   f. Work with pharmacies to promote delivery of medications and food stuffs, including home drop-off deliveries.

4. The OSDH will continuously monitor the status of hospital emergency departments, hospital bed availability, emergency medical services, and other treatment facilities.

5. The OSDH will implement an updated survey to monitor availability and use of critical medical equipment as part of the OSDH communications plan (EMResource®).

6. The OSDH EPRS will work with the regional Multi-Agency Coordination Systems (includes MERC's) to monitor stress on the healthcare system in order to determine the need for activation of alternate care sites. Alternate care sites are included in local county pandemic plans and could include the following:

   a. Long term care facilities,

   b. Specialty hospitals,

c. Ambulatory surgery centers,

d. Urgent care facilities,

e. School gymnasiums,

f. Auditoriums, and

g. Community centers.

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

Additional Support (includes State Emergency Management activation and/or Federal assistance)

8. The OSDH will initiate contact with response partners and Oklahoma blood banks in an attempt to ensure the uninterrupted delivery of blood products to hospitals and other treatment facilities.

9. The OSDH will monitor state level assets and request additional federal medical assets following the *Oklahoma SNS Plan* requesting procedures.

D. DEMOBILIZATION

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 retrieve all unused state and/or federal medical assets (equipment and supplies) or provide instructions for storage and/or disposal.

3. The OSDH will work with partners to create training opportunities for public health and medical systems personnel addressing gaps identified in an AAR.

Essential Element #6
Community Disease Control and Prevention

This element addresses the containment of a pandemic in the community setting using non-pharmaceutical interventions such as isolation, quarantine, and social distancing (see Appendix H). Non-pharmaceutical interventions will be critical in the early phases of a pandemic and will be imperative if vaccines and/or antiviral drugs are unavailable or 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, increased attention to hand and respiratory hygiene, and use of personal protective equipment (PPE) 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 infectious agent, the assessment of risk, available resources, morbidity and mortality, and the public's 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 throughout the pandemic to minimize disease transmission and minimize impact on individuals (see Appendix A). Decisions regarding the level and scope of implementation of non-pharmaceutical interventions will be scalable and can be expected to change throughout the pandemic period. For example, in the early phases of a pandemic, surveillance efforts may initially only detect the "herald" cases, therefore, 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.

The objectives of non-pharmaceutical interventions are to:

1. Slow spread of disease while strengthening preparedness measures, including augmenting vaccine and medical countermeasure supplies.

2. Reduce the potential morbidity, mortality, economic impact, and social disruption.

Several important assumptions and principles must be considered when planning for a pandemic:

1. The OSDH non-pharmaceutical interventions (see Appendix G) will be the primary means of mitigating the impact of a pandemic in the absence of adequate or effective supplies of vaccine and treatment or prophylactic medications, as well as complement vaccination and antiviral treatment/post-exposure prophylaxis during a pandemic.

2. The OSDH will review available information and data from the CDC, the World Health Organization, and other Public Health Ministries or agencies to assess the expected relative effectiveness of available non-pharmaceutical interventions prior to making official public health recommendations. The effectiveness of various non-pharmaceutical interventions will not be duplicative of previous pandemics, but will depend upon the characteristics of the evolving infectious agent including the pathogenicity, principal

modes of transmission (droplet and/or aerosol), onset and duration of shedding, infectivity in different risk groups, proportion of asymptomatic infections, and disease morbidity and mortality.

3. The OSDH selection of non-pharmaceutical interventions will depend upon the latest epidemiologic data, including the observed severity of the event, feasibility (i.e., cost and availability of resources and supplies), consequences on critical infrastructure, healthcare delivery, and the public. Non-pharmaceutical interventions will change throughout the course of a pandemic based on these same factors.

4. The OSDH Acute Disease Service (ADS) and the OSDH Public Health Laboratory (PHL) will differentiate characteristics of a novel influenza virus from that of seasonal influenza virus. Although the incubation period for seasonal influenza ranges from one to four 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. Effective and standard communications will be crucial to achieving understanding and acceptance of community mitigation measures. The OSDH Office of Communications will ensure the content and methods of providing community prevention messages are timely, accurate, accessible, and coordinated. Each entity involved in planning and responding to a pandemic must periodically test methods of communications, including redundancies.

A. LEVEL 4 - MONITORING

Routine Planning & Day-to-Day Operations

1. The OSDH ADS will regularly assess available surveillance, laboratory, and epidemiologic data and disseminate reports describing the current influenza and other respiratory virus activity to healthcare professionals and the general public. A healthcare provider summary report is regularly distributed via the OK-HAN and data summaries for the general public are updated and posted on the OSDH website (www.ok.gov/health/Disease,_Prevention,_Preparedness/Acute_Disease_Service/Seasonal_Disease_Topics/Seasonal_Influenza_Information/).

2. The OSDH will promote respiratory and hand hygiene to the public.

3. The OSDH will promote staying home from work, school, church, and other public places when sick with any infectious disease.

4. The OSDH, in collaboration with county health departments, will educate public officials and first responders about pandemics as well as other public health emergencies and steps that should be taken to plan for community responses through exercises.

5. The OSDH and county health departments will work with businesses to develop methods for implementing adult social distancing measures while maintaining business continuity (see Appendix G).

6. 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 cost breakfast and lunch programs) and education if child social distancing measures are implemented, particularly for an extended period of time.

7. The OSDH and the county health departments will partner with local community health agencies to establish relationships for providing behavioral health support to the community.

8. The OSDH Office of General Counsel will ensure all needed legal authorizations exist and will ensure the ability to invoke local and state legal authority on isolation, quarantine, and other social distancing strategies in a timely fashion.

9. The OSDH ADS, in collaboration with other OSDH Services, will develop and distribute model protocols and best practices for isolation and quarantine (see Appendix H) for individual, institutional and community applications. Sample protocols (used for tuberculosis) 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.

Notifications & Awareness

10. The OSDH and county health departments will collaborate with clinicians to investigate ill travelers from affected regions (see Appendix I).

B. LEVEL 3 – PARTIAL ACTIVATION

1. The State Public Health Veterinarian and other OSDH personnel will coordinate with appropriate agencies, such as the Oklahoma Department of Agriculture, Food, and Forestry (ODAFF) and the Oklahoma Department of Wildlife Conservation, to develop recommendations for surveillance of infectious agent transmission within animal populations if the pandemic agent is zoonotic, and to develop an integrated communications and response plan congruent with the threat of a particular circulating animal or human virus.

2. The OSDH will review and address issues surrounding early school closures (to include grade school, higher education, and daycares), social distancing, and travel restrictions to reduce the spread of disease.

3. The OSDH, in preparation for responding to suspected or confirmed pandemic-associated cases in Oklahoma, will consider implementing the following expected actions:

a. *Recommending or ordering isolation (O.A.C. 310:521-7-3) of persons with symptoms consistent with the suspected disease.* Depending on the characteristics and severity of illness, patients may be isolated in a healthcare facility.

b. *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. Contact management activities will be based on the likelihood that the suspected case is infected with the pandemic infectious agent, the ease of person-to-person transmission, and the feasibility of contact tracing. Quarantine may be lifted as soon as the exposed contact has remained symptom-free for one complete incubation period.

c. *Identifying and publishing adequate timeframes to remain home before returning to work or school* (see Appendix J).

d. *Promoting personal hygiene and healthy behaviors to the public to reduce or prevent transmission.*

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

OSDH Activation

1. The OSDH and county health departments will investigate small clusters of human infection with the novel infectious agent. Measures to contain small case clusters of infection may include voluntary quarantine of exposed persons and enhanced surveillance to detect additional cases. An additional measure for containment of novel influenza A may include targeted prophylaxis with antiviral medications, such as oseltamivir.

2. The OSDH and county health departments will evaluate and manage ill travelers from affected regions and will distribute information via press releases and post information on the OSDH website to instruct travelers about the symptoms and risk factors associated with the novel agent, instructions for self-monitoring, instructions for isolation should symptoms develop, instructions for self-care, and mechanisms for notifying public health officials in the event of illness.

3. The OSDH will work with county health department personnel and the CDC to make appropriate recommendations for medical treatment or prophylaxis to prevent infection in public health and healthcare workers, reduce severity of illness especially in individuals at high risk for complication, and attempt to contain transmission from the first identified case(s).

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 promptly review any revised editions of CDC guidelines issued during a pandemic to update and distribute Oklahoma-specific guidelines for control of pandemic

illness at home, in the workplace, in healthcare facilities, and in other group or residential settings.

6. 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.

7. The OSDH and county health departments may recommend the use of focused measures, such as temporary closure of schools or daycares in geographic locations with identified cases to enhance social distancing. Focused measures may be useful when transmission is limited and most cases can be traced to a known transmission setting.

8. The OSDH may broaden community-based activity restrictions although the use of broader community-based measures is generally reserved for pandemics with high mortality rates. The OSDH and county health departments may consider and make recommendations for their use on a case-by-case basis using current epidemiologic, laboratory, surveillance, and clinical data and guidance from the CDC. Measures such as closing schools, canceling large public gatherings, curtailing public transportation, and other community activity restrictions may be recommended.

9. The OSDH will recommend containment measures in the context of available vaccine and medical countermeasures, the level of public cooperation, resources available to implement and monitor compliance, and the severity of illness to include the following:

    a. Isolation of persons with influenza-like illness (ILI) or another symptom profile consistent with the pandemic agent. Persons with fever and respiratory symptoms (of mild to moderate severity not requiring hospitalization) will be asked to voluntarily isolate themselves by staying at home and restricting their contact with others. The duration of the isolation period for persons with fever will be based on the infectious period associated with the specific novel agent in question.

    b. Prescriptions for treatment or prophylaxis of symptomatic persons and their contacts, if effective medical countermeasures are available, in order to contain the spread of the pandemic agent.

    c. Quarantine of exposed household contacts of persons with pandemic-associated illness. Quarantine may be lifted when the exposed contact has remained symptom-free for one complete incubation period. Quarantines of exposed persons are anticipated to be voluntary unless the pandemic has the highest severity index (5 or greater).

10. Designated OSDH personnel 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. Designated OSDH personnel 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.

b. Coordinate community-based containment measures on an as-needed basis. Options include quarantine of exposed individuals and groups or measures that affect either subsets of or the entire community.

12. The OSDH will provide personal protective equipment and infection control recommendations to workers involved with animal handling or depopulation associated with a pandemic threat. OSDH personnel will also assist with educating workers on signs and symptoms of the illness of concern, and establish a method with their employer for daily monitoring and follow-up of worker illness or absenteeism.

Additional Support ***(includes State Emergency Management activation and/or Federal assistance)***

13. The OSDH will collaborate with the Oklahoma Department of Emergency Management (OEM) and county health departments to estimate current and surge supplies to support isolation, quarantine, and other containment measures.

14. The OSDH Office of the State Epidemiologist, ADS, Office of General Counsel, and county health departments will coordinate degree of enforcement with Department of Public Safety (DPS) partners and other stakeholders who may be involved enforcing mandatory isolation or quarantine orders as outlined in the *Oklahoma Catastrophic Health Emergency Plan.*

15. The OSDH, in collaboration with the Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS), will provide mental health resources to those impacted by isolation, quarantine, or other community mitigation measures if the social impact of such measures is high.

16. County health departments may regularly meet with school, business, and community leaders to ensure essential services and governmental functions are sustainable and assess resource needs during a pandemic.

17. The OSDH and county health departments will coordinate with the Department of Human Services (DHS) to encourage owners/managers of adult and child daycare centers to develop plans addressing temporary closure and cancellation of social events.

18. The OSDH will assist county health departments to work with superintendents and school boards of each public and private school system to develop plans addressing a decision matrix for dismissal or closure, continuity of essential services provided by schools in the event school closures are instituted, cancellation of school-based public events/programs, and other social distancing methods. Plans for school re-openings and resumption of

normal school operations once pandemic activity has subsided should also be included in these planning efforts.

19. The OSDH will continue to work with the Oklahoma State Department of Education to refine planning for minimizing the disruption to families and communities from school closures. Alternate methods of continuing educational instruction, such as internet-based lectures and homework assignments, will be encouraged along with methods to continue offering essential nutrition programs (free/reduced cost breakfast and lunch programs).

20. The OSDH will encourage institutes of higher education to work with the Board of Regents to develop plans addressing cancellation of university and college classes, community mitigation measures applicable for both on- and off-campus residences, and postponement or cancellation of competitive and social events.

D. DEMOBILIZATION

1. The OSDH will scale back community control measures after the incidence of disease either decreases to a manageable level or ceases.

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. Because these principles are common to the prevention of other infectious agents spread by respiratory droplets this element is expected to have cross application to other potential pandemic agents. This *Plan* element includes guidance on the selection and use of personal protective equipment, hand hygiene and safe work practices, cleaning and disinfection of environmental surfaces (see Appendix K), 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, and the use of infection prevention and control measures to prevent transmission. However, when a pandemic begins, a vaccine will likely not yet be widely available and the supply of antiviral drugs may be constrained. 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 viral transmission requires close contact (3-6 feet) 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 influenza seasons and past pandemics. 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 incorporates new information 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. During a pandemic, the Oklahoma State Department of Health (OSDH) and its partners will provide updated infection prevention and control guidance specific to medical and public community settings utilizing the Oklahoma Health Alert Network (OK-HAN) system, internet, and other media systems available.

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.

A. LEVEL 4 - MONITORING

1. The OSDH 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 emergency as guided by the CDC (see Appendix G).

2. The OSDH will ensure current information is available for appropriate healthcare providers and facilities, and medical systems utilizing the OSDH website, the 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 G and K-Q).

3. The OSDH will ensure current information is available for long-term care facilities and other residential care services utilizing the OSDH website, the OK-HAN system, and other media outlets. Topics of these communications will include appropriate medical information and updates regarding all methods of infection prevention and control (see Appendices G, L, P, and Q).

4. The OSDH Community and Family Health Services will ensure the current OSDH *Infection Prevention and Control Manual* addresses current issues pertaining to infection prevention and control, and employee health within settings unique to the OSDH Central Office and local county health departments.

B. LEVEL 3 – PARTIAL ACTIVATION

1. The OSDH will communicate updated information concerning the changing evidence base of pandemic status to hospitals and physicians through the use of OK-HAN alerts.

2. The OSDH will review and update planned messages to ensure updated methods of infection prevention and control are provided to the general public for pandemic level recommendations (see Appendices G-J).

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

OSDH Activation

1. The OSDH will implement a healthcare worker information outreach campaign utilizing the OK-HAN, posters, EMResource®, and other media sources to provide recommendations for healthcare workers on reduction of exposure methods during a pandemic.

2. The OSDH will communicate infection control messages and clinical guidelines to medical communities based on international, national, and state surveillance data and interpretation (see Appendices R-U).

3. The OSDH will provide recommendations and public information material for transport vehicles, schools, and other public entities on reduction of exposure methods during a pandemic (see Appendices G, H, and J).

4. The OSDH will distribute state and federal PPE cached items either to regional medical systems partners, to MIPS jurisdictions, or directly to hospitals in the event the regular ordering processes are affected.

D. DEMOBILIZATION

1. The OSDH will continue to coordinate planning activities with state, local, regional, tribal, and federal agencies and non-governmental organizations.

2. The OSDH will review and update the appendices with best practices identified and conducted throughout the pandemic.

3. The OSDH will continue to promote infection prevention to minimize the occurrence of a second-wave of transmission.

The following is a summary of appendices, referenced above, that incorporates CDC guidelines and recommendations for pandemic influenza infection prevention and control measures. These appendices are templates that will be reviewed, modified, and tailored to the specific pandemic disease threat prior to communicating with partners, affected entities, and the general public:

Appendix G: Recommendations for Infection Prevention and Control in Schools, Workplaces, and Community Settings
Appendix H: Non-Pharmaceutical Interventions
Appendix I: What Employees Living Abroad or Who Travel Internationally for Work Should Know
Appendix J: Return to Workplace or School Guidance
Appendix K: Interim Guidance on Environmental Management of Pandemic Influenza Virus
Appendix L: Infection Control Guidelines for Healthcare Workers
Appendix M: Acute Care Hospital Recommendations
Appendix N: Emergency Medical Services Recommendations
Appendix O: Outpatient and Ambulatory Settings Recommendations
Appendix P: Home Healthcare Setting Recommendations
Appendix Q: Long Term Care and Other Residential Facility Recommendations
Appendix R: Recommendations for Care of Pandemic Individuals with Influenza in a Home or Alternate Care Site
Appendix S: Clinical Guidelines for Inter-pandemic and Pandemic Alert Periods
Appendix T: Criteria for Evaluation of Patients with Possible Novel Influenza
Appendix U: Summary of Initial Management of Patients who Meet the Criteria for Novel Influenza

Essential Element #8
Clinical Guidelines for Novel Influenza A

This element provides clinical procedures for the initial screening, assessment, and management of patients with suspected novel influenza during the Inter-pandemic and Pandemic Alert Periods and for patients with suspected pandemic influenza during the Pandemic Period. The guidance is current as of July 2009 and is subject to change as experience is gained. Updates will be provided, as needed, on the Centers for Disease Control and Prevention (CDC) website (www.cdc.gov) and on the U.S. Department of Health and Human Services (HHS) website (www.hhs.gov/pandemicflu/plan/pdf/HHSPandemicInfluenzaPlan.pdf).

During the Inter-pandemic 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 probability will be high that any severe febrile respiratory illness is pandemic influenza. During periods 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 are 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 or has been in contact with known novel influenza cases.

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 the virus within a community. Clinical awareness of a pandemic 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. 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 and addressing clinical complications.

A. LEVEL 4 - MONITORING

1. The OSDH will assist in the education of state, local, and regional acute care hospitals with clinical guidelines for pandemic influenza protocols (see Appendix S).

2. The OSDH will provide clinical procedures for initial screening, assessment, and management of patients suspected of novel influenza infection as guided by CDC (see Appendices T and U).

3. The OSDH EPRS will activate the Adapted Standards of Care Task Force as appointed by the Oklahoma Catastrophic Health Emergency Planning Task Force to identify guidelines in the event hospital resources are overwhelmed or constrained. OSDH EPRS will work on maintaining these guidelines and obtaining full legal protections during a catastrophic health emergency for medical professionals working in such an environment.

B. LEVEL 3 – PARTIAL ACTIVATION

1. The OSDH Office of the State Epidemiologist and the OSDH ADS will ensure current clinical guidelines are disseminated utilizing the OK-HAN throughout the state to acute care hospitals and other medical facilities containing current CDC guidelines (see Appendix S).

2. The OSDH Office of the State Epidemiologist and ADS will provide information on quick identification and triaging of suspected cases of influenza (see Appendix T).

3. The OSDH ADS will disseminate epidemiological patterns of disease transmission using the OK-HAN and/or OSDH website to help guide patient care and infection control at state, local, regional, and tribal medical facilities.

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

1. The OSDH will disseminate epidemiologic data on the pandemic using the OK-HAN and/or OSDH website to healthcare providers and state, local, regional, and tribal medical facilities for continued assistance with patient assessment and clinical management.

2. The OSDH Office of the State Epidemiologist and ADS will continue to provide updated clinical guidelines directed from the CDC or Adapted Standards of Care guidelines to the state, local, regional, and tribal medical facilities.

D. DEMOBILIZATION

1. The OSDH will continue to coordinate planning and educational activities with state, local and regional medical facilities in clinical guideline procedures.

The following is a summary of appendices, referenced above, that incorporates CDC guidelines and recommendations for infection prevention and control measures. These appendices are examples that will be reviewed and modified prior to communicating with partners, affected entities, and the general public:

Appendix S: Clinical Guidelines for Inter-pandemic and Pandemic Alert Periods
Appendix T: Criteria for Evaluation of Patients with Possible Novel Influenza
Appendix U: Summary of Initial Management of Patients Who Meet the Criteria for Novel Influenza

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,* the Oklahoma Health Alert Network (OK-HAN), and WebMD as important tools to help achieve this goal.

The OSDH effort, inclusive of this document and the OSDH *CERC Plan*, is consistent with the Centers for Disease Control and Prevention (CDC) *Influenza Pandemic Operational Plan Annex 1* (Crisis Communication). The *CERC Plan* also identifies strategies for ensuring functional needs accommodations for all general public information listed below.

A. LEVEL 4 - MONITORING

Pre-event messaging focuses on preparing the public psychologically and emotionally for a pandemic. The OSDH and county health departments are already established in Oklahoma as the recognizable information source on seasonal influenza. Based on the increased awareness and response during the 2009 influenza A (H1N1) pandemic, the OSDH identified effective ways to educate the public about pandemic influenza.

1. The OSDH will continually review the OSDH *CERC Plan* and revise as necessary.
2. The OSDH Office of Communications will modify as needed and share pre-developed communication materials pertaining to influenza vaccination contained in the pandemic influenza shelf kit.
3. The OSDH will ensure messages employed throughout the year but typically during the routine flu season will:
    a. Recommend all Oklahomans 6 months of age and older obtain routine influenza vaccination, with special emphasis on medically high-risk groups.
    b. Recommend medically high-risk groups obtain pneumococcal vaccination to reduce risk of bacterial pneumonia as necessary. (Note: pneumococcal polysaccharide vaccine (PPV) is recommended for all persons aged $\geq$ 65 years. Persons aged $\geq$ 2 years with certain medical conditions are recommended to receive one dose of PPV before age 65 years with a single revaccination dose $>$ 5 years after the first dose.)
    c. Recommend early planning for local businesses, hospitals, and schools for the continuity of optional operational services during a pandemic (see Appendices G and H).
    d. Recommend citizens continue taking everyday actions to stay healthy by practicing good hygiene habits that can reduce the chance of catching germs and passing them on to others such as:

i. Cover your nose and mouth with a tissue when you cough or sneeze. Throw the tissue in the trash after you use it, and then perform hand hygiene.

ii. Wash your hands often with soap and water, especially after you cough or sneeze. Alcohol-based hand cleaners are also effective when hands are not visibly soiled.

iii. Avoid touching your eyes, nose, or mouth. You infect yourself this way.

iv. Stay home if you get sick. CDC recommends that you stay home from work or school and limit contact with others to keep from infecting them. Wait until you are free of fever at least 24 hours before returning to work.

e. Support government efforts to acquire and stockpile vaccines and antiviral medications if needed.

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 efforts for functional needs populations.

5. The OSDH Office of Communications routinely uses resources 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 Website will 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 CDC Web sites (www.cdc.gov and www.pandemicflu.gov/) to ensure maximum integration of federal, state, and local information.

7. The OSDH will continue to test the OK-HAN and OSDH *CERC Plan* systems through regularly scheduled exercises.

B. LEVEL 3 – PARTIAL ACTIVATION

1. The OSDH will routinely update key stakeholders, including Office of Management and Enterprise Services (OMES) to forward information to all state agencies, on operational plans, guidance documents, and employee safety recommendations.

2. In anticipation of a pandemic or other large infectious disease outbreak in Oklahoma, the OSDH will inform the public of potentially significant lifestyle changes that may be required in a pandemic, such as following personal protection actions to help prevent persons from becoming ill, and following public health advice on school closures, avoiding crowds, and other social distancing measures.

3. The OSDH will ensure messages employed during this activation will:

   a. Emphasize that in a pandemic, supplies of certain medications may be limited and vaccine may not be available during the early months of a pandemic. The most current

non-pharmaceutical interventions as recommended by the OSDH will be included in priority messaging provided to the public.

b. Emphasize that in a pandemic, critical decisions must be made regarding who gets vaccine or medications and who will need to rely on non-pharmaceutical protection measures. The decisions will be based on ensuring essential services are maintained for society to function (by providing vaccine to those in critical occupations) balanced with vaccine availability for those most at risk of high attack rates of illness or those who have existing medical conditions that put them at higher risk of complications from a pandemic illness. These decisions could be unpopular, and thorough communications regarding the decision matrix will be an important goal.

c. Emphasize that travel advisories may be issued (see Appendix I).

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

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 (using vaccines or antivirals, if available).

   b. Other persons must take appropriate hygiene precautions along with other non-pharmaceutical actions.

   c. Communities must implement their emergency response plans.

   d. Public involvement, including mobilization of volunteers, is essential.

   e. As with severe seasons of regular influenza, a pandemic will result in many hospitalizations and some people will die.

   f. Communicate during a pandemic that social distancing measures and personal protective equipment (PPE), such as masks, may become necessary under certain circumstances.

2. The OSDH Office of Communications will employ the *Crisis and Emergency Risk Communications Plan*, including the establishment of a Joint Information System and Joint Information Center (JIC) if needed, to handle the surge of media requests and public inquiries generated by the pandemic and provide guidance regarding disease susceptibility, diagnosis, and management. If established, the OSDH JIC will serve as a centralized point where multiple agencies working together can share information and disseminate consistent messages.

3. The OSDH will coordinate the activation of a telephone call-in center, according to the agency's call-in center procedures, to answer questions from the general public and healthcare professionals regarding vaccine availability and prioritization, clinic locations, general medical questions, home care concerns and other key topics of concern. Feedback from phone bank calls will be used for message modification.

4. The OSDH Web site will be updated to provide main page access to pandemic news, information, and resources. Feedback from the public and other partners will be used for message modification.

5. The OSDH will communicate regularly with partners at all levels, including local 2-1-1 information hotlines, to ensure consistency of messaging.

6. The OSDH will continue to use OK-HAN and WebMD to alert healthcare providers of public health recommendations.

D. DEMOBILIZATION

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. How to access behavioral health counseling if needed.

   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 or sooner if a substantial decrease in calls occurs, and/or phones can be transferred to a single service.

3. The OSDH will utilize the OK-HAN and WebMD to alert healthcare providers of any updates to public health recommendations.

4. The OSDH will return to pre-event messaging employed in the monitoring activation level, which will include the following:

   a. Medically high-risk groups should obtain routine influenza vaccination.

   b. Medically high-risk groups should obtain pneumococcal vaccination to reduce risk of bacterial pneumonia.

5. The OSDH will review "lessons learned" from communications strategies employed in the first pandemic wave and adjust the OSDH *Crisis and Emergency Risk Communications Plan* accordingly.

Essential Element #10
Workforce Psychosocial Support

This element details the mechanisms that need to be in place to provide assurances that the workforce responding during a pandemic receives the emotional and behavioral health support to remain effective and to reduce post-stress symptoms. The response to a pandemic will pose substantial physical, personal, social, and emotional challenges to healthcare providers, public health officials, emergency responders, and essential service workers. These challenges 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, family members, and/or communities under quarantine restrictions.
12. Concern about receiving vaccines and/or antiviral drugs before other persons.

During a severe 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 carry out 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.

The OSDH has recognized the following occupational groups that will participate in the response to a pandemic. The following first responder groups have been identified that may need psychosocial support:

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.

5. Family members of all of these groups.

A. LEVEL 4 - MONITORING

1. The OSDH, in collaboration with the Oklahoma Department of Mental Health and Substance Abuse Services (ODMHSAS), will plan for 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 (i.e., social workers, psychiatrists, nurses, psychologists, and 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 (i.e., primary-care clinicians, emergency department staff, medical/surgical staff, safety and security personnel, behavioral health support staff, chaplains, community leaders, staff of cultural and faith-based organizations, and volunteers).

4. The OSDH and ODMHSAS will work with the Oklahoma Medical Reserve Corps to maintain a registry of behavioral health volunteers that includes, but is not limited to, 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.

5. The OSDH and ODMHSAS will work to promote the need to identify options for childcare and eldercare and support family planning.

6. The OSDH and ODMHSAS, to prepare for implementation of workforce resiliency programs to cope with the special challenges posed by a pandemic, will:

a. Plan for a long response on severe pandemics (i.e., more than 1 year). (Oklahoma experienced this need following the Murrah Building bombing in 1995 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.

c. Prepare partnerships with employee assistance programs and develop plans to augment these programs with social support services for the families of deployed workers (www.hhs.gov/pandemicflu/plan/sup11.html).

7. The ODMHSAS will participate in local public health exercises for preparedness of state, local, and regional personnel and behavioral health first responders.

B. LEVEL 3 – PARTIAL ACTIVATION

1. 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 a severe pandemic, and provide information about techniques for coping with these emotions.

   b. Assist in the education of employees about the importance of developing "family communications 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.

   d. Respond to questions about infection prevention and control practices to prevent the spread of disease in the workplace and employment issues related to illness, sick pay, staff rotation, and family concerns.

C. LEVEL 2 (1) – FULL-SCALE ACTIVATION (w/FEDERAL SUPPORT)

1. The OSDH and ODMHSAS during the pre-deployment phase will deliver workforce support materials that provide information on:

   a. Emotional responses,

   b. Stress reduction and relaxation,

   c. Stigmatization,

   d. Telephone support lines, and

e. Website resources.

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, and stress management issues, coping skills, and supervisor training in strategies for maintaining a supportive work environment.

4. The OSDH and ODMHSAS will routinely monitor the occupational safety, health, and psychological well-being of deployed staff.

5. The OSDH and ODMHSAS will identify stress control/resilience teams if strains are observed in the workforce due to the severity of the pandemic. These teams will assist and support employees and foster cohesion.

6. The OSDH will identify resources to ensure rest and recuperation sites are available to staff if they are 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.

7. The ODMHSAS will expand confidential telephone support lines staffed by behavioral health professionals.

8. 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 if strains are observed in the workforce due to the severity of the pandemic.

9. The OSDH and 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 childcare.

   d. Healthcare issues such as availability of vaccines, antiviral drugs, and PPE.

   e. Actions to address understaffing or depletion of personal protective equipment and medical supplies.

   f. Infection prevention and control practices as conditions change.

   g. Approaches to ensure patients' adherence to medical and public health measures without causing undue anxiety or alarm.

   h. Management of agitated or desperate persons.

i. Guidance on distinguishing between psychiatric disorders and common reactions to stress and trauma.

j. Management of those who fear they may be infected, but are not ("worried well").

k. Guidance and psychosocial support for persons exposed to large numbers of influenza cases and deaths, and to persons with unusual or disturbing disease symptoms.

10. The OSDH and ODMHSAS will ensure services to families of employees who must work in the field, work long hours, and/or remain in hospitals or other workplaces overnight due to a high severity pandemic that has greatly reduced the workforce include:

    a. Provision of cell phone or wireless communication devices to allow regular communication among family members.

    b. Provision of information via websites or hotlines, including printed materials that can be posted or shared when internet access is limited.

    c. Access to expert advice and answers to questions about disease control measures and self-care.

    d. 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.

    e. 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).

11. The OSDH and ODMHSAS will ensure other occupational groups that might participate in the pandemic response (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, and closure of national or regional borders), especially if such actions are compounded by an economic crisis or abrupt loss of essential supplies and services.

D. DEMOBILIZATION

1. The OSDH will elicit comments from 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.

APPENDIX A:
The Pandemic Severity Index
and Community Mitigation Strategy

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. A calculated excess mortality rate may be available early in the pandemic response 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 (for determining case of transmission), and 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, age-specific mortality rates, for example.

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.

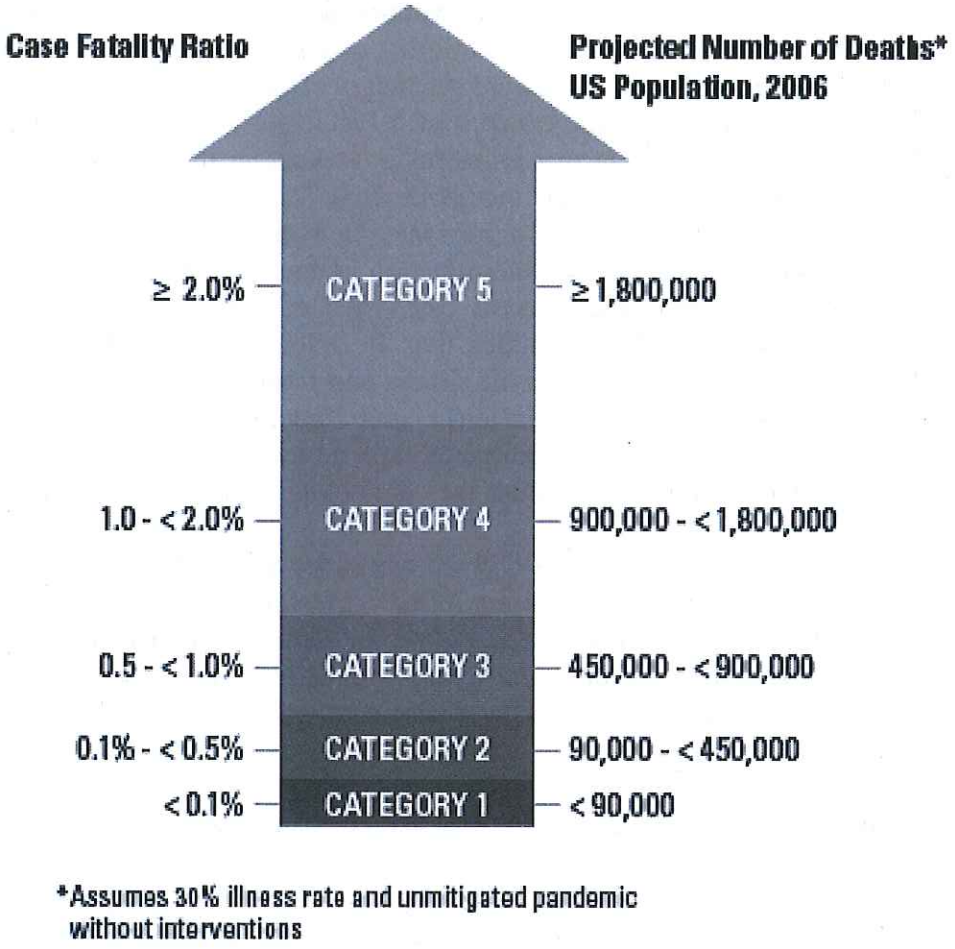

Figure 1. Pandemic Severity Index

Use of Non-Pharmaceutical 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:

a. 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.

b. 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.

c. 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.

d. 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 Non-Pharmaceutical Interventions (NPIs) outlined above.

Planning for use of these NPIs 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 non-pharmaceutical 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 NPIs 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.

PRE-PANDEMIC PLANNING: Community Mitigation Strategy

	Pandemic Severity Index		
Interventions* by Setting	**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 work place 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 facemasks when indicated. Additional information on infection control measures is available at http://www.pandemicflu.gov/.

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. *World Health Organization Pandemic Phases 1-2*	Preparedness planning	Use recommended response actions for inter-pandemic influenza prevention and control.
Federal Governmental Response Stages 1-2: Suspected/confirmed human outbreaks overseas. *World Health Organization Pandemic Phases 3-5*	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.
	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.

Level of Influenza Activity	Response	Rationale
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	

APPENDIX B:
Vaccine Priority Group Recommendations

This Appendix is only meant to serve as a preparedness and planning guide. In the event of pandemic vaccine distribution, the vaccine priority group tiers and sub-tiers are subject to change based on the epidemiology of the pandemic illness and allocated vaccine type with associated FDA-approved label for use.

Targeted groups in the General Population

Tier	Group	Population Definition	Rationale
1	Pregnant Women	Women at any stage of pregnancy.	Pregnant women are at high risk of severe complications or death from pandemic influenza due to immunological, circulatory, and respiratory changes that occur during pregnancy; vaccinating the pregnant woman also may protect newborn infants due to passive transfer of maternal antibodies.
1	Infants and toddlers, 6-35 months old	Infants and toddlers in the specified age group.	Persons in this age group are at high risk of severe complications or death from pandemic influenza; vaccination may require a lower dose than used to protect older children and adults; antiviral medications are not approved for use in children < 1 year old; public values prioritize children highest among groups defined by age and disease status.
2	Household contacts of infants under 6 months old	Household contacts of infants under 6 months old.	Infants under 6 months old cannot be directly protected by vaccination and influenza antiviral drugs are not approved for this age group; therefore, protecting young infants by vaccinating household contacts is the best option; public values prioritize children highest among groups defined by age and disease status.

Tier	Group	Population Definition	Rationale
2	Children 3 – 18 years old with a high-risk medical condition	Children in the specified age group with a chronic medical condition that increases their risk of severe influenza disease, including heart and lung diseases, metabolic disease, renal disease, and neuromuscular diseases that may compromise respiratory function, as defined by ACIP recommendations for seasonal influenza vaccination	Children with these conditions are at increased risk of severe complications or death from influenza disease; public values prioritize children highest among groups defined by age and disease status.
3	Children 3 – 18 years old without a high-risk medical condition	Children in the specified age group not included in above	Public value prioritize children highest among groups defined by age and disease status; vaccinating children may reduce transmission of pandemic influenza to household contacts and in communities; if children are protected by vaccine, schools can re-open mitigating secondary adverse consequences of closing schools.
4	High-risk persons 19-64 years old	Adults in the specified age group with a chronic medical condition that increases their risk of severe influenza disease, including heart and lung diseases, metabolic disease, renal disease, and neuromuscular diseases that may compromise respiratory function, as defined by ACIP recommendations for seasonal influenza vaccination.	Adults with these conditions are at high-risk of severe complications or death from pandemic influenza.
4	Persons over 65 years old	Elderly adults in the specified age group	Persons in this group are at high-risk of severe complications or death from pandemic influenza.
5	Healthy adults, 19-64 years old	Adults in the specified age group not included above.	Persons in this group lack age, health condition, and occupational rationales for priority pandemic vaccination.

Targeted groups in Healthcare and Community Support Services

Tier	Group	Population Definition	Rationale
1	Public Health personnel	Public health responders at federal, state, and local levels	Essential to implementing the pandemic response, including the vaccination program and other pharmaceutical and non-pharmaceutical response measures; also provide care for poor and underserved populations; personnel have a high risk exposure to persons with pandemic illness.
1	Inpatient health care providers	Includes two-thirds of personnel at acute care hospitals who would be identified by their institution as critical to provision of inpatient health care services; primarily will include persons providing care with direct patient exposure but also will include persons essential to maintaining hospital infrastructure.	Maintaining quality inpatient health care is critical to reducing mortality from pandemic influenza and from other illnesses that will occur concurrently with the pandemic; inpatient health care burden will be markedly increased during a pandemic; studies show health outcomes are associated with staff-to-patient ratio; personnel have high risk of exposure, including to infectious aerosols; infected health care personnel may transmit infection to vulnerable persons hospitalized for non-influenza illnesses.
1	Outpatient and home health care providers	Includes two-thirds of personnel identified by their organization at outpatient facilities, including but not limited to physician's offices, dialysis centers, urgent care centers, and blood donation facilities; and skilled home health care personnel.	Maintaining outpatient and home health care is critical to reducing pandemic mortality and morbidity and reducing the burden on inpatient services; outpatient health care burden will be markedly increased during a pandemic; personnel have high risk of exposure, possibly including to infectious aerosols; infected health care personnel may transmit infection to vulnerable person receiving care for non-influenza illness.

Tier	Group	Population Definition	Rationale
1	Health care personnel in long-term care facilities (LTCFs)	Includes two-thirds of personnel at LTCFs identified by their organization as critical to the provision of care	Essential to provide care to more than 3 million persons in LTCFs who are particularly vulnerable to influenza illness and death; risk of pandemic outbreaks in LTCFs may best be reduced by vaccinating staff and limiting exposure of residents to infection; if outbreaks occur, personnel have high risk of exposure, possibly including to infectious aerosols.
2	Community support service personnel (emergency management and community and faith-based support organizations	Personnel from community organizations including the Red Cross who will provide essential support and have direct contact with persons and families affected during community pandemic outbreaks, and emergency management personnel who coordinate pandemic response and support activities.	Community level support will be critical for persons who are ill and isolated in their homes or are complying with recommendations for voluntary household quarantine during community pandemic outbreaks, for elderly persons who live alone and may be afraid of going out during a pandemic, for persons who are homeless, and for other vulnerable populations; support may include providing food and medications, as well as other social and mental health services; personnel will be at high risk of exposure to ill persons and, if infected could transmit illness to a high-risk population.
2	Pharmacists	Includes pharmacists dispensing drugs at retail locations (note that pharmacists in hospitals or outpatient centers may be targeted as part of those groups).	Essential to dispense medications for pandemic influenza and other illnesses; may have increased exposure risk to persons with pandemic infection.
2	Mortuary service personnel	Includes funeral directors	Increased burden likely during a pandemic; may have increased occupational exposure to ill

			family members of deceased persons.
Tier	**Group**	**Population Definition**	**Rationale**
3	Other important health care personnel	Includes groups that provide important health care services but are at less occupational risk, such as laboratory personnel	Personnel provide important health care services but are not in as close contact with ill persons and at less risk of occupational infection.

Targeted groups in Critical Infrastructure

Tier	Group	Population Definition	Rationale
1	Emergency services personnel – EMS, fire, law enforcement, and corrections	Includes groups supporting emergency response and public safety. EMS personnel include those who are fire department-based, hospital-based or private; fire fighters include professionals and volunteers; law enforcement includes local police, sheriff's officers, and state troopers; and correction officers include those at prisons and jails.	Provide critical public safety and emergency response services; contribute to pandemic response activities by maintaining public order and contributing to medical care services; increased occupational risk for emergency medical services due to exposure to persons with pandemic illness.
1	Manufacturers of pandemic vaccine and antiviral drugs	Includes critical personnel required for ongoing production of pandemic medical countermeasures to support a pandemic response.	Reducing pandemic health impacts requires production of pandemic vaccine and antivirals drugs.
2	Communications/IT, electricity, nuclear, oil and gas and water sector personnel and financial clearing and settlement personnel.	Personnel who are critical to support essential services provided by the defined sectors.	Those sectors provide products and services that generally cannot be stored, are required for community health and safety, and are essential to the functioning of other critical infrastructure sectors.
2	Critical government personnel-operational and regulatory functions	Federal, state, local and tribal government employees and contractors who perform critical regulatory or operational functions	Government personnel are critical for implementing and monitoring components of the pandemic response, and performing regulatory or

		required for essential operations of other CI sectors.	operational functions essential to critical infrastructures that protect public health and safety and preserve security.
Tier	**Group**	**Population Definition**	**Rationale**
3	Banking and Finance, Chemical, Food, and Agriculture, Pharmaceutical, Postal and Shipping and Transportation sector personnel.	Personnel who are critical to support essential services provided by the defined sectors.	These sectors provide essential products and services; however compared with Tier 2 sectors, products can more likely be stored, facilities and personnel are more fungible and better able to maintain essential functions with high absenteeism, and other strategies can be implemented to protect workers.
3	Other critical government personnel	Federal, state, local and tribal government employees and contractors who perform important government functions included in agency continuity of operations plans.	Continuity of key government functions is important to support communities and critical infrastructures.

APPENDIX C:
Recommendations for Identifying Essential Personnel

In the event of a catastrophic health emergency related to an outbreak of a novel and severe infectious agent, the Oklahoma State Department of Health (OSDH) will be responsible for allocating and distributing any available countermeasure medications or vaccinations to county health departments for further distribution within their county and municipalities to maintain essential community services and infrastructure. Vaccinations will be administrated or medications will be prescribed to pre-identified workers to help prevent them from becoming ill during the pandemic. Prophylactic medications may also be dispensed to these 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 critical infrastructure personnel listing should be reviewed and updated on a regular and ongoing basis, i.e., at least annually.

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

a. Local Medical Services (physicians, EMS, home healthcare, long term care),

b. Firefighters (paid and volunteer),

c. Police (city, county, sheriff),

d. National Guard,

e. Key Emergency Response Decision Makers (elected officials, essential government workers, disaster services personnel),

f. Utility Workers (water, waste water, gas, electric, essential communications systems – phone, Internet),

g. Local Media,

h. Funeral Services/Mortuary Personnel,

i. People who work with Institutionalized Populations (corrections – federal, city, or county jails),

j. Persons who are Employed in Public Transportation and Transportation of Essential Goods (food, energy, medical supplies),

k. Bank Personnel,

l. Animal Services (veterinarians, key staff),

m. Waste Disposal,

n. Retail (grocers),

o. Key Industries Personnel, and

p. Humanitarian Aid Services (American Red Cross, food banks).

Each county will need to record the number of essential personnel within each category as part of their local pandemic response plan. If a pandemic with a high severity index appears to be imminent, county health departments may be asked to review and update lists of persons who are employed in critical infrastructure positions. Since a limited supply of vaccine and medical countermeasures is anticipated during certain phases of the pandemic response, 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 medications or pandemic vaccine that will be allocated to each county will not be provided prior to a national pandemic declaration.

APPENDIX D:
Antiviral Drug Priority Group Recommendations

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

- The committee focused its deliberations on the domestic U.S. civilian population. National Vaccine Advisory Committee (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 (four 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.

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 without treatment.
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.

Group	Estimated population in Oklahoma	Strategy	Rationale
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, persons ≥ 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.
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.

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

APPENDIX E:
Antiviral Medications for Planning and Response

I. Introduction

There are currently five 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, zanamivir, and peramivir). 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 between different neuraminidase inhibiting drugs is variable. Currently the federal stockpile contains a mix of 80% oseltamivir and 20% zanamivir.

During the 2009 H1N1 pandemic, studies conducted in partnership with the Centers for Disease Control and Prevention (CDC) found an increased risk of hospitalizations or other severe outcomes for at-risk persons who had delayed initiation of antiviral treatment leading to enhanced recommendations for use of influenza antiviral medications. The current antiviral use guidance for clinicians contains these key elements and is accessible at http://www.cdc.gov/flu/professionals/antivirals/summary-clinicians.htm:

- Antiviral treatment is recommended as soon as possible for patients with confirmed or suspected influenza who have severe, complicated, or progressive illness, or who are hospitalized.
- Antiviral treatment is recommended as soon as possible for outpatients with confirmed or suspected influenza who are at higher risk for influenza complications; clinical judgment should be an important component of outpatient treatment decisions.
- Oseltamivir should be used to provide treatment for infants aged less than 1 year old when indicated, and for chemoprophylaxis in infants 3 months to one year of age.
- Antiviral treatment can be considered for any previously healthy non-risk symptomatic outpatient with confirmed or suspected influenza who is not in the recommended groups, based upon clinical judgment, if treatment can be initiated within 48 hours of illness onset.

II. Neuraminidase inhibitors

The neuraminidase inhibitors, zanamivir, oseltamivir, and peramivir are chemically related members of a 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, these 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 seven (7) years and older. Oseltamivir is an orally administered capsule or oral suspension that is approved for treatment of influenza in persons older than two (2) weeks. Peramivir is administered intravenously and is licensed by the FDA for treatment of influenza in hospitalized adults aged 18 years and older, particularly those patients with suspected or known gastric stasis, malabsorption, or gastrointestinal bleeding. For the treatment of uncomplicated influenza with intravenous peramivir, duration of treatment is 1 day; duration may be longer for complicated cases. For oseltamivir and zanamivir, the recommended duration of treatment is five days. Oseltamivir is also approved for chemoprophylaxis of influenza in persons aged 1 year and older; zanamivir is licensed for chemoprophylaxis of influenza among children aged > 5 years. 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.

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. Diarrhea is an expected complication of peramivir usage and serious skin reactions and sporadic, transient neuropsychiatric events have also been reported.

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 (ideally within 24-48 hours of illness onset) of suspected or confirmed influenza cases. This strategy may also address the relative role of using different antiviral agents (e.g., use of only one class of antiviral drugs versus a combination of drugs for treatment of illness resulting from infection with a pandemic influenza A strain with resistance to one or more types of antivirals). 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 2 days of illness onset to otherwise healthy adults, antiviral drugs can reduce the duration of uncomplicated influenza illness. Treatment with

antiviral agents may 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 3 to 5 days of treatment or within 24 to 48 hours after the disappearance of signs and symptoms, depending on the agent used. Although dosage schedules are provided for amantadine and rimantadine, influenza viruses frequently develop resistance to the adamantine antiviral medications and will be unlikely to have a major role in treatment and prophylaxis during a pandemic.

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 mg/kg/day (up to 150 mg) orally in 2 divided doses.

(2) 10 TO 12 YEARS: 100 mg orally twice a day (children over 10 years who weigh less than 40 kilograms: 5 mg/kg/day).

(3) 13 TO 64 YEARS: 100 mg orally twice a day.

(4) OVER 64 YEARS: Up to 100 mg 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 mg orally twice a day.

(2) OVER 64 YEARS: 50 to 100 mg orally twice a day.

ZANAMIVIR (Relenza®): For treatment of influenza A or B in adults and children 7 years and older.

(1) 7 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 (Tamiflu®): For treatment of influenza in adults and children

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

(2) CHILDREN 1 YEAR AND OLDER:

If younger than 1 yr. old: 3 mg/kg/dose twice daily for 5 days;

If > 1 yr old and weight of 15 kg or less: 30 mg orally twice a day for 5 days;

16-23 kg: 45 mg orally twice a day for 5 days;

24-40 kg; 60 mg orally twice daily for 5 days;

Over 40 kg: 75 mg orally twice a day for 5 days.

PERAMIVIR (Rapivab®): For treatment of influenza in hospitalized patients 18 years and older

_____One 600 mg dose, via intravenous infusion for 15-30 minutes

Pregnant Women

Pregnant women are known to be at higher risk for complications from infection with seasonal influenza viruses, and severe disease among pregnant women was reported during past pandemics. Pregnancy should not be considered a contraindication to outpatient use of oseltamivir or zanamivir. Because of its systemic activity, oseltamivir is preferred for treatment of pregnant women. Pregnant women are recommended to receive the same antiviral dosing as non-pregnant persons.

B. Prophylaxis Only

Antiviral drugs can be used for chemoprophylaxis to prevent symptoms of illness resulting from infection with a pandemic influenza A strain. This strategy directs 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 a person who is 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:

a. Limited supplies,

b. Increasing risk of side effects with prolonged use, and

c. 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. **For control of outbreaks in institutional settings (e.g. long-term care facilities for elderly persons and children) and hospitals**, CDC recommends antiviral chemoprophylaxis for a minimum of 2 weeks, and continuing up to 1 week after the last known case was identified. Antiviral chemoprophylaxis is recommended for all residents, including those who have received influenza vaccination, and for unvaccinated institutional employees

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 prophylactically used during pregnancy only if the potential benefit justifies the potential risk to the embryo or fetus (Centers for Disease Control and Prevention, 2003). Zanamivir may be preferable because of its limited systemic absorption.

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 and to delay or reduce transmission within the community or region.

RECOMMENDATIONS: To be effective as chemoprophylaxis, antiviral medication must be taken each day until 7 days past the last known exposure. 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 mg/kg/day (up to 150 mg) orally in two (2) divided doses (NOTE: 5 mg/kg/day of amantadine syrup = 1 teaspoon/22 lb).

(2) 10 TO 12 YEARS: 100 mg orally twice daily (children over 10 years who weigh less than 40 kg: 5 mg/kg/day).

(3) 13 TO 64 YEARS: 100 mg orally twice daily.

(4) OVER 64 YEARS: 100 mg orally once daily.

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

RIMANTADINE:

(1) 1 TO 9 YEARS: 5 mg/kg/day (up to 150 mg) orally in two (2) divided doses (NOTE: 5 mg per kg of rimantadine syrup = 1 teaspoon/22 pounds).

(2) 10 TO 12 YEARS: 100 mg orally twice daily (children over 10 yr who weigh less than 40 kg: 5 mg per day)

(3) 13 TO 64 YEARS: 100 mg twice daily

(4) OVER 64 YEARS: 50 to 100 mg orally twice daily (NOTE: Elderly nursing home residents should be administered only 100 mg per day; a reduction in dose to 100 mg per day should be considered for all persons ≥65 years of age if they experience possible side effects when taking 200 mg per day)

Available Forms: Flumadine® tablets, syrup

OSELTAMIVIR:

(1) ADULTS & ADOLESCENTS 13 YEARS AND OLDER: 75 mg orally, **once daily**

(2) ADOLESCENTS 1 to 13 YEARS:
15 kg or less: 30 mg orally a day;
16 to 23 kg: 45 mg orally once a day;
24 – 40 kg: 60 mg orally once per day;
Over 40 kg: 75 mg orally once per day.

Available Forms: Tamiflu® capsules, oral suspension

(3) CHILDREN UNDER 1 YEAR OF AGE:
<3 months: Not recommended
3-11 months: 3 mg/kg body weight once daily

ZANAMIVIR:

(1) ADULTS & CHILDREN 5 YEARS AND OLDER: Two inhalations (one 5 mg blister per inhalation for total dose of 10 mg) 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 on the FDA website (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.

APPENDIX F:
Acute Care Hospital 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 Chief Medical Officer, upon determination by the Oklahoma State Department of Health (OSDH) that the State's Antiviral Stockpile should be used for pandemic response efforts.

Hospitals form a critical societal infrastructure, and it is the intent of the 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 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 or designated point-of-contact.

4. Maintain accurate records of dispensation to include prescribing information, damage, loss, or reallocation to other hospitals.

Method of Accountability

Printed prescription profile of dispensed antiviral medications to healthcare staff and family will be retained by the hospital for accountability purposes. Hospitals will provide epidemiologic data for all recipients of antivirals. Adverse event data will be transmitted to the OSDH via a designated web-based Countermeasure Response & Administration electronic reporting system on a daily basis.

Implementation

Each party will review this Memorandum of Understanding. Signature implies agreement to all conditions contained herein. A signed copy of this Memorandum must be received before distribution of the hospital's apportionment of antivirals can occur. The OSDH retains the right to apportion the antivirals at their discretion to each facility to meet overall public health needs during a public health emergency.

_____ _____

Terry Cline, Ph.D. Date
Commissioner
Secretary of Health and
Human Services

_____ _____

Hospital Administrator Date

[Hospital Name]
[Hospital Address]
[Hospital Phone Number]

APPENDIX G:
Non-Pharmaceutical Interventions

DECISION-MAKING

The effectiveness of non-pharmaceutical interventions will depend on epidemiologic characteristics of the infectious microbe. Infectious pathogen 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 pandemic illness from other disease.

Determinants for Non-Pharmaceutical Interventions

OSDH will routinely evaluate information on cases, contacts and availability of public health and healthcare resources to guide decision-making on non-pharmaceutical 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 available at http://www.flu.gov/planning-preparedness/community/community_mitigation.pdf." 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 non-pharmaceutical interventions. The Pandemic Severity Index and HHS guidance for non-pharmaceutical interventions (see Appendix A) served as a reference for development of OSDH community mitigation guidelines in this appendix. OSDH will review and modify community mitigation strategies based on the most recently published HHS non-pharmaceutical guidance or on interim guidance documents distributed by the CDC during a pandemic event.

NON-PHARMACEUTICAL 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, regular exercise, tobacco cessation, 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 6 feet away from others while symptomatic.

Phone Bank

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.

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 status of surveillance for pandemic illness at the international, national, and state level; changes in the status of pandemic activity in the United States and Oklahoma; and guidance for diagnosis, reporting and control of pandemic 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 ill 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 infection with a novel infectious agent who do not require hospitalization should be isolated in their homes. Individuals with illness not requiring hospitalization will be requested to remain in voluntary isolation at home for the duration of the infectious period associated with the circulating novel virus. Infection control precautions and procedures for isolating pandemic 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 probable case), quarantine and chemoprophylaxis, if available, will be important measures in the initial response to slow the spread of a pandemic.

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;
e. Employees or residents/attendees of an institutional setting such as a childcare center or nursing home; and
f. Healthcare providers who are providing direct patient care.

If personal protection equipment (see Infection Control Section) is appropriately used, an individual will not be considered an exposed 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 the respective disease. The duration of quarantine will be based on the maximum known incubation period associated with the circulating novel strain, or the CDC recommended isolation period for the circulating strain. OSDH will adjust the quarantine time-frame as more epidemiologic data on the incubation period is known about the novel strain.

Methods for quarantine:

a. An individual's personal residence 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 movement or activities.
d. Workplace quarantine allows exposed employees to work, but employees must observe activity restrictions while off duty. Monitoring for signs and symptoms of illness before reporting to work and the use of personal protective equipment while at work will be required. This strategy may be applicable for persons who provide essential services while minimizing the adverse impact of limiting essential services provision.

The OSDH will provide information to exposed contacts who are recommended or ordered into quarantine with recommendations regarding supplies and resources that are needed during the quarantine period (refer to OSDH Fact Sheet: Taking Care of a Sick Person in the Home). Management of exposed contacts may be passive or active monitoring without activity restriction and/or quarantine at home. A symptom log form for monitoring for development of symptoms during quarantine is located at the end of this Appendix.

a. *Passive* monitoring: The 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 contact's health status at least once during the individual's incubation period.

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

a. From quarantine to isolation, if the contact develops symptoms; or
b. Release from quarantine if the contact does not develop symptoms during the established incubation period for the circulating novel disease strain.

Factors for Home Quarantine and Isolation

A person's residence is generally the preferred setting for quarantine or isolation (if illness is not severe). OSDH will provide information to cases and exposed contacts who are recommended or ordered into isolation or quarantine with recommendations regarding supplies and resources that are needed during the quarantine period (refer to OSDH Influenza Fact Sheet: Taking Care of a Sick Person in the Home).

Recommended supplies and resources include:

a. Basic utilities (water, electricity, garbage collection and heating or air-conditioning as appropriate).
b. Basic supplies (clothing, food, hand-hygiene supplies, and laundry services).
c. Mechanism for addressing special needs (e.g., filling prescriptions).
d. Mechanism for communication, including telephone and e-mail (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 for persons who do not have a home situation suitable for this purpose or for those who require quarantine or isolation while away from their home (e.g. during travel or at workplace). 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 of 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.

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 pandemic-associated 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 other infectious diseases and may significantly decrease morbidity and mortality among children.

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 Oklahoma Department of Education during pre-pandemic planning to develop methods for continuing essential nutrition programs (free/reduced cost breakfast and lunch programs) and education if child social distancing measures are implemented for a longer time period (>1-2 weeks). County health departments will coordinate planning with superintendents and school boards located within their local jurisdictions.

Adult Social Distancing

Social distancing measures for adults include provisions for both workplaces and the community at-large 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 health workers, healthcare providers, and critical infrastructure personnel. The quarantine may be applicable to all members of a group of people or community to prevent the further spread of pandemic illness. 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 infected persons will still be in the incubation period, may be shedding virus asymptomatically or may have mild symptoms. The federal government has primary responsibility for managing movement between states or across international borders. Novel influenza virus was added to the federal quarantine 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, economic impact and available resources to maintain containment measures.

Decisions will be based on the latest epidemiologic, laboratory, and clinical data, and the 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 decreasing trend in the number of confirmed cases.
b. Reduction in the number of probable cases; and
c. Verification that effective protective countermeasures are in place.

Daily Symptom Monitoring Log for Exposed Contacts
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 pandemic virus either through close contact to someone who is ill or from recent foreign travel, you must monitor your temperature and health status for the development of fever and other symptoms each day. This must be done for **10** days following your 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.

Please use the attached Symptom Monitoring Log to record your temperature daily and the presence of any respiratory symptoms should they occur. If you develop a fever (greater than 100 degrees Fahrenheit) or any respiratory symptoms, such as cough, sore throat, or shortness of breath, please notify your primary healthcare provider, notify the county health department and place a mask on your face if you must seek medical care.

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: _____

Daily Symptom Monitoring Log for Exposed Contacts
Oklahoma State Department of Health

Name of individual: _____

Telephone number: _____

Address: _____
Street City Zip code County

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: _____

Date	Symptoms				
	Temperature (measured)	**Cough**	**Sore Throat**	**Shortness of Breath**	**Other symptoms (describe)**
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	
		Yes No	Yes No	Yes No	

APPENDIX H:
Recommendations for Infection Prevention & Control in Schools, Workplaces, & Community Settings

The best strategy to reduce the risk of becoming infected with influenza (or other novel respiratory pathogens) during a pandemic is to avoid exposure to someone who may be infected by avoiding crowded settings and other situations that increase the risk of exposure. If it is absolutely necessary to be in a crowded setting, the time spent in a crowd should be as short as possible, followed by appropriate hand hygiene. In the event of a high severity index pandemic, wearing of a surgical mask while in public setting may also be a recommended preventative step. Some basic hygiene information (www.cdc.gov/flu/protect/stopgerms.htm) and social distancing precautions that can be implemented in every school or workplace include the following:

1. Instruct sick students/employees to stay at home until fever has resolved for at least 24 hours without use of medication.
2. Provide education and reinforcement regarding proper hand hygiene. Instruct students/employees to wash their hands frequently with soap and water or apply hand sanitizer if hands are not visibly soiled.
3. Provide education and reinforcement regarding respiratory hygiene/cough etiquette.
    a. Instruct students/employees to avoid touching their noses, mouths, and eyes to prevent contaminating themselves with germs picked up on their hands.
    b. Instruct students/employees to cover their coughs and sneezes with a tissue, or to cough and sneeze into their upper sleeves if tissues are not available. Dispose of used tissues into appropriate trash receptacle as soon as possible. Everyone should wash their hands or use a hand sanitizer after they cough, sneeze, or blow their nose.
4. Provide educational material and encourage posting of these messages in easily visible areas on:
    a. Proper hand hygiene techniques,
    b. Respiratory hygiene/cough etiquette,
    c. Benefits of minimizing/avoiding social gatherings, and
    d. Use of masks (the benefit of wearing masks in these settings has not been established, but may be employed during a pandemic).

Social distancing of at least six (6) feet should be practiced by all, including employees with their coworkers or customers, and students with classmates or teachers. They should avoid shaking hands and always wash their hands after contact with others. Even if wearing gloves, they should wash their hands upon removal of the gloves in case the gloves developed unnoticed holes or tears, or if their hand(s) became contaminated during the glove removal process.

1. Provide access to tissues and trash receptacles, and adequate facilities and supplies to wash or disinfect their hands.

2. Keep surfaces, telephones, computer equipment, and other frequently touched surfaces and office equipment clean, using a disinfectant to eliminate germs. Be sure that any cleaner/disinfectant used is deemed effective against the pandemic infectious agent, registered by the U.S. Environmental Protection Agency (EPA), and follow all directions and safety precautions indicated on the product label.
3. Discourage employees from using other employees' phones, desks, offices, or other work tools and equipment. If this cannot be avoided, clean and disinfect those surfaces and items between employees
4. Minimize situations where groups of people are crowded together, such as in a meeting or sporting event. Use e-mail, phones and text messages to communicate with each other when possible or cancel/postpone group events such as public receptions. When meetings are necessary, avoid close contact by keeping a separation of at least 6 feet, where possible, and assure that there is proper ventilation in the room.
5. Reduce or eliminate unnecessary social interactions to effectively control the spread of infectious diseases. Reconsider all situations that permit or require students, employees, customers, and visitors (including family members) to enter the area. Schools or workplaces that permit family visitors on site should consider restricting/eliminating that option during a pandemic. Sites with on-site daycare should consider in advance whether these facilities will remain open or will be closed during a pandemic, and the impact of such decisions on students/employees and the business.
6. Promote healthy lifestyles, including good nutrition, exercise, and smoking cessation. A person's overall health impacts their body's immune system and can affect their ability to fight off, or recover from, an infectious disease.

Working Environments

Adapted from U.S. Department of Labor, Occupational Safety and Health Administration (OSHA), Guidance on Preparing Workplaces for an Influenza Pandemic, OSHA 3327-05R 2009, accessed January 2013 at http://www.osha.gov/Publications/OSHA3327pandemic.pdf. More information about protecting yourself, your coworkers and employees, and your family can be found at www.pandemicflu.gov.

Basic Recommended Work Practice and Engineering Controls:

1. Provide resources and a work environment that promotes personal hygiene. For example, provide tissues, no-touch trash cans, hand soap, hand sanitizer, disinfectants and disposable towels for employees.
2. Encourage employees to obtain a seasonal influenza vaccine (this helps to prevent illness from seasonal influenza strains that may continue to circulate).
3. Provide employees with up-to-date education and training on infectious disease risk factors, protective behaviors, and instruction on proper behaviors (for example, cough etiquette and care of personal protective equipment).
4. Develop policies to minimize contacts between employees and between employees and clients or customers.
5. Examples of engineering controls include:

a. Installing physical barriers, such as clear, plastic sneeze guards.
b. Installing a drive-through window for customer service.
c. In healthcare settings where aerosol generating procedures are performed, specialized negative pressure ventilation is recommended, with employees wearing N-95 respirators or higher if indicated.

Basic Recommended Administrative Controls

Administrative controls include limiting employees' exposure by scheduling their work tasks in ways that minimize their exposure levels. Examples of administrative controls include:

1. Developing policies that encourage ill employees to stay at home without fear of any reprisals.
2. The discontinuation of unessential travel to locations with high illness transmission rates.
3. Consider practices to minimize face-to-face contact between employees such as e-mail, websites and teleconferences. Where possible, encourage flexible work arrangements such as telecommuting or flexible work hours to reduce the number of your employees who must be at work at one time or in one specific location.
4. Consider home delivery of goods and services to reduce the number of clients or customers who must visit your workplace.
5. Developing emergency communications plans. Maintain a forum for answering employees' concerns. Develop internet based communications if feasible.

Basic Recommended Personal Protective Equipment (PPE)

While administrative and engineering controls and proper work practices are considered to be more effective in minimizing exposure to the influenza virus, the use of PPE by employees may also be indicated during certain pandemic exposures. If used correctly, PPE can help prevent some exposures; however, they should not take the place of other prevention interventions, such as engineering controls, cough etiquette, and hand hygiene (see www.cdc.gov/flu/protect/stopgerms.htm).

Examples of PPE are gloves, goggles, face shields, surgical masks, and respirators (for example, N-95). It is important that PPE be:

1. Selected based upon the hazard to the employee;
2. Properly fitted and some must be periodically refitted (e.g., respirators);
3. Conscientiously and properly worn;
4. Regularly maintained and replaced, as necessary; and
5. Properly removed and disposed of to avoid contamination of self, others or the environment.

Employers are obligated to provide their employees with protective gear needed to keep them safe while performing their jobs. The types of PPE recommended for a pandemic will be based on the risk of contracting influenza while working and the availability of PPE. Check the www.pandemicflu.gov website for the latest guidance.

Workplaces Classified at Lower Exposure Risk (Caution) for Pandemic Influenza:
Lower Exposure Risk: Employees who have minimal occupational contact with the general public and other coworkers (for example, office employees). These employees do not require contact with people known to be infected with the pandemic virus, nor frequent close contact (within 6 feet) with the public. Even at lower risk levels, however, employers should be cautious and develop preparedness plans to minimize employee infections.

What to Do to Protect Employees
Follow basic personal hygiene practices and social distancing to help protect employees at work. Follow the general hygiene and social distancing practices recommended above, and also try the following:

1. Communicate to employees what options may be available to them for working from home.
2. Communicate the office leave policies, policies for getting paid, transportation issues, and day care concerns.
3. Make sure that your employees know where supplies for hand hygiene are located, and when hand hygiene is indicated.
4. Monitor public health communications about pandemic disease information and ensure that your employees also have access to that information.
5. Work with your employees to designate a person(s), website, bulletin board or other means of communicating important pandemic flu information.

Workplaces Classified at Medium Exposure Risk for Pandemic Influenza:
Medium Exposure Risk: Employees with high-frequency contact with the general population (such as schools, high population density work environments, and some high volume retail). These include jobs that require frequent, close contact (within 6 feet) exposures to other people such as coworkers, the general public, outpatients, school children, or other such individuals or groups.

What to Do to Protect Employees
If frequent close contact between employees or with the general public cannot be avoided, determine practices to reduce the risk of infection. In addition to the basic work practices that every workplace should adopt (see Appendix G), below are some of the issues that employers should address when developing plans for workplace safety and health during a pandemic.

Work Practice and Engineering Controls

1. Instruct employees to avoid close contact (within 6 feet) with other employees and the general public. This can be accomplished by simply increasing the distance between the employee and the general public in order to avoid contact with large respiratory droplets from people talking, laughing, coughing or sneezing.
2. Some organizations can expand internet, phone-based, drive through window, or home delivery customer service strategies to minimize face-to-face contact. Work

with your employees to identify new ways to do business that can also help to keep employees and customers safe and healthy.

3. Communicate the availability of medical screening or other employee health resources (e.g., on-site nurse or employee wellness program to check for flu-like symptoms before employees enter the workplace).
4. Employers also should consider installing physical barriers, such as clear plastic sneeze guards, to protect employees where possible (such as cashier stations).

Administrative Controls

1. Educate employees so that they understand the office leave policies, policies for getting paid, transportation issues, and day care concerns.
2. Make sure that employees know where supplies for hand hygiene and environmental cleaning are located.
3. Work with your employees to designate a person(s), website, bulletin board or other means of communicating important pandemic information.
4. Use signs to keep customers informed about symptoms of the pandemic illness, and ask sick customers to minimize contact with your employees until they are well.
5. Your workplace may consider limiting access to customers and the general public, or ensuring that they can only enter certain areas of your workplace.

Personal Protective Equipment (PPE)

Employees who have high-frequency, close contact with the general population that cannot be eliminated using administrative or engineering controls, and where contact with symptomatic ill persons is possible should use PPE to prevent contact with potentially infected liquid droplets (from talking, laughing, coughing, or sneezing) from contacting their nose or mouth.

1. Wear a surgical (procedure) mask when contact of ≤ 6 feet of others is anticipated in general situations.
    a. Masks protect against large droplets, but are not as efficient against small droplet (airborne) spread of disease.
    b. If surgical masks are in short supply, a reusable face shield that can be decontaminated may be an option for protecting against infectious droplet particles.
2. Wear a respirator (N-95 or higher) when close contact with persons with symptoms of influenza is anticipated. This is particularly important if the symptomatic person is not wearing a mask themselves, or in the presence of aerosol-producing medical procedures.
    a. Employees may need to be fit tested and trained in the proper use and care of a respirator.
    b. Long-term use of a respirator can be burdensome to employees, particularly when the use of PPE is not common practice for the workplace.
3. Eye protection may be recommended when strains of influenza have caused eye infection (conjunctivitis). During a pandemic, health officials will determine this risk and communicate the recommendation for eye protection in workplaces (non-healthcare).

4. Hand hygiene is more effective than glove use in workplaces. Employees should wash hands frequently with soap or use alcohol-based hand products to prevent spread of potentially infectious material from contaminated surfaces to their eyes, mouths or noses.
    a. Gloves offer protection, however the risk lies in a person's self-contamination through touching the eyes, mouth and nose with contaminated hand/fingers.
    b. If an employee does wear gloves, they should always wash their hands immediately after removal with soap or use an alcohol-based hand product because gloves can develop undetected holes or tears, or hands may become contaminated during glove removal.
5. When selecting PPE, employers should consider factors such as function, fit, durability, ability to be decontaminated if needed, and disposal before cost.

Educate and train employees about safe and appropriate use of PPE for their routine and any additional duties they may need to perform. Include training of employees to safely put on (don) and take off (doff) PPE in the proper order to avoid inadvertent self-contamination (http://www.osha.gov/SLTC/respiratoryprotection/index.html).

During a pandemic, recommendations for PPE use in particular occupations may change, depending on geographic proximity to active cases, updated risk assessments for particular employees, and information on PPE effectiveness in preventing the spread of influenza.

Workplaces Classified at <u>High or Very High Exposure</u> Risk for Pandemic Influenza:
High Exposure Risk: Occupations/activities at high potential for exposure to known or suspected sources of pandemic influenza virus may include:

1. Healthcare delivery and support staff exposed to known or suspected pandemic patients (for example, doctors, nurses, and other hospital staff that must enter patients' rooms).
2. Medical transport of known or suspected pandemic patients in enclosed vehicles (for example, emergency medical technicians).
3. Performing autopsies on known or suspected pandemic patients (for example, morgue and mortuary employees).

Very High Exposure Risk: Occupations/activities with very high potential of exposure to high concentrations of known or suspected sources of pandemic influenza during certain high risk medical or laboratory procedures.

1. Healthcare employees (for example, doctors, nurses, dentists) performing aerosol-generating procedures on known or suspected pandemic patients (for example, cough induction procedures, bronchoscopes, some dental procedures, or invasive specimen collection).
2. Healthcare or laboratory personnel collecting or handling specimens from known or suspected pandemic patients (for example, manipulating cultures from known or suspected pandemic influenza patients).

What to Do to Protect Employees
Workplaces with employees that are required to have close contact with persons known, or suspected to be infected with the pandemic virus need to follow the recommendations listed below in addition to basic work practices. For additional guidance: http://www.pandemicflu.gov and http://www.osha.gov.

It is important to understand the risk of higher absenteeism due to employees' heightened concern about their own safety and possible implications for their families. Communicate frequently with your employees about resources, recommendations and the priority of safety. More information about protecting employees and their families can be found at: http://www.pandemicflu.gov.

Work Practice and Engineering Controls
Employers should ensure that employees have adequate training and supplies to practice proper hygiene: soap and water, and alcohol-based hand hygiene products. Employers should also consider offering enhanced medical monitoring of employees in very high and high-risk work environments. This may include instructing employees to take their temperature at least twice daily and report presence of mild fever or any respiratory symptoms to an occupational health nurse.

When respiratory secretions may be aerosolized such as during healthcare procedures, negative airflow ventilation is recommended. Negative airflow ventilation can reduce the risk of transmission for healthcare workers in the same room as infectious patients, but must be used in conjunction with appropriate PPE. Thus, a combination of engineering controls and PPE are recommended.

1. When possible, negative airflow rooms should be used when performing aerosol generating procedures for patients with known or suspected pandemic illness.
2. Laboratory facilities that handle specimens for known or suspected pandemic patients need to meet requirements of a Bio-Safety Level 3 facility.

Administrative Controls (Isolation Precautions)
If working in a health care facility, follow existing guidelines and facility standards of practice for identifying and isolating infected individuals and for protecting employees. See the OSHA pandemic influenza preparedness and response guidance for health care facilities at: http://www.osha.gov/Publications/OSHA_pandemic_health.pdf.

Personal Protective Equipment (PPE)
Those who work closely with (either in contact with or within 6 feet) people known or suspected to be infected with pandemic influenza should wear:

1. Respiratory protection for protection against small droplets from talking, coughing or sneezing and also from small airborne particles of infectious material.
2. N-95 or higher rated filter for most situations.
3. Supplied air respirator (SAR) or powered air purifying respirator (PAPR) for certain high-risk medical or dental procedures likely to generate bio-aerosols.

4. Use a surgical respirator when both respiratory protection and resistance to blood and body fluids is necessary.
5. Face shields may also be worn on top of a respirator to prevent bulk contamination of the respirator. Certain respirator designs with forward protrusions (duckbill style) may be difficult to properly wear under a face shield. Ensure that the face shield does not prevent airflow through the respirator.
6. Medical/surgical gowns or other disposable/de-contaminable protective clothing.
7. Gloves to reduce transfer of infectious material from one patient to another.
8. Eye protection if splashes are anticipated.

The appropriate form of respirator will depend on the type of exposure and on the transmission pattern of the particular strain of influenza. See the National Institute for Occupational Safety and Health (NIOSH) - Respirator Selection Logic at: http://www.cdc.gov/niosh for additional information about appropriate respirator choice and use.

Educate and train employees about the protective clothing and equipment appropriate to their current duties and the duties which they may be asked to assume when others are absent. Education and training material should be easy to understand and available in the appropriate language and literacy level for all employees. Employees need to be fit tested and trained in the proper use and care of a respirator. It is also important to train employees to put on (don) and take off (doff) PPE in the proper order to avoid inadvertent self-contamination http://www.cdc.gov/HAI/prevent/ppe.html. Employees who dispose of PPE and other infectious waste must also be trained and provided with appropriate PPE.

During a pandemic, recommendations for PPE use in particular occupations may change depending on geographic location, updated risk assessments for particular employees, and information on PPE effectiveness in preventing the spread of influenza. Additional respirator and surgical mask guidance for healthcare workers have been developed and is available at http://www.osha.gov/Publications/OSHA_pandemic_health. This document, Interim Guidance on Planning for the Use of Surgical Masks and Respirators in Health Care Settings during an Influenza *Pandemic*, provides details on the differences between a surgical mask and a respirator, the state of science regarding influenza transmission, and the rationale for determining the appropriate protective device.

APPENDIX I:
What Employees Living Abroad or Who Travel Internationally for Work Should Know

Employees living abroad and international business travelers should note that other geographic areas have different influenza seasons and will likely be affected by a pandemic at different times than the United States. The U.S. Department of State emphasizes that, in the event of a pandemic, its ability to assist Americans traveling and residing abroad may be severely limited by restrictions on local and international movement imposed for public health reasons, either by foreign governments and/or the United States. Furthermore, American citizens should take note that the Department of State cannot provide Americans traveling or living abroad with medications or supplies even in the event of a pandemic.

In addition, the Department of State has asked its embassies and consulates to consider preparedness measures that take into consideration the fact that travel into or out of a country may not be possible, safe, or medically advisable during a pandemic. Guidance on how private citizens can prepare to shelter in place, including stocking food, water, and medical supplies, is available at the http://http://www.flu.gov/ website. Embassy stocks cannot be made available to private American citizens abroad, therefore, employers and employees are encouraged to prepare appropriately. It is also likely that governments will respond to a pandemic by imposing public health measures that restrict domestic and international movement, further limiting the U.S. government's ability to assist Americans in these countries. These measures may be implemented very quickly so it is important that employers and employees plan appropriately.

More information on pandemic influenza planning for employees living and traveling abroad can be found at: http//:www.flu.gov/planning-preparedness/transportation/index.html and http://www.cdc.gov/travel.

APPENDIX J:
Return to Workplace or School Guidance

This information is for people who have been diagnosed with pandemic influenza by a health care provider or who believe they have pandemic influenza based on symptoms of illness. It is intended to assist these people in deciding when to return to the workplace or school to decrease the chance of spreading pandemic influenza to others.

Transmission of Influenza
Influenza (flu) is an illness that is easy to spread by close contact with others at home, in the community, at work, or at school. Influenza viruses spread mainly from person to person when people with influenza cough or sneeze. Individuals can also become infected with the influenza virus by touching objects or surfaces and then touching their eyes, mouth or nose.

Symptoms of Influenza
Sudden onset of:

- Fever at or above 100.4°F (38°C) with a cough, sore throat, and/or difficulty breathing.
- Other symptoms may also occur such as chills, headache, muscle aches, fatigue, and runny or stuffy nose.

Influenza illness will likely make many people, even young adults feel very sick—sick enough to stay in bed. If you are unsure whether you have influenza, want information about antiviral medications that may help you get better faster, or want to know how to avoid transmitting the influenza virus to others, contact your health care provider. Additional information about pandemic influenza can be found at http://www. flu.gov.

If you have pandemic influenza, **before returning to your workplace or school**:
STAY HOME AND AWAY FROM OTHERS until your fever has been gone for at least 24 hours without the use of fever-reducing medicines such as acetaminophen (Tylenol) and ibuprofen (Motrin®, Advil®).

WHY? Studies show you are most contagious and likely to spread influenza virus to others for 7 to 10 days after your first symptoms appeared and for up to 24 hours after your fever has ended.

IF YOU HAVE A MEDICAL CONDITION THAT WEAKENS YOUR IMMUNE SYSTEM, CONSULT WITH YOUR HEALTH CARE PROVIDER for guidance on when you may return to your workplace or school and on possible treatment with antiviral medications.

WHY? Being immunosuppressed means your body's immune system may be weaker than normal, for example, from cancer or cancer treatment, organ or bone marrow transplants, HIV/AIDS, or from treatment with drugs such as steroids. Studies show that an immunosuppressed person who is infected with influenza may be able to transmit the virus for a longer period than a person who is not immunosuppressed.

After returning to your workplace or school, remember to:

- Cover your coughs or sneezes with tissues (if no tissues are available cough into your sleeve), and dispose of tissues in trashcans or wastebaskets.
- Clean your hands after coughing or sneezing as soon as you can.
- Keep your hands clean by washing with soap and water or using alcohol-based hand gels frequently.
- As much as possible, avoid touching people and surfaces with unwashed hands.
- Return home or stay home and contact your health care provider if your symptoms worsen or re-occur.

APPENDIX K:
Interim Guidance on Environmental Management of Pandemic Influenza Virus

Environmental Management

Influenza A and B viruses can persist on both nonporous and porous environmental surfaces for hours to days depending on a variety of human and environmental factors. The secondary spread of infectious virus from environmental reservoirs to susceptible persons is accomplished primarily via hand transfer (i.e., hand contact with contaminated surfaces and then touching mucous membranes of the eyes, nose, and mouth). Proper hand washing or hand hygiene, coupled with respiratory hygiene and cough etiquette is the principal means of interrupting transmission. Routine cleaning and disinfection strategies used during traditional influenza seasons will most likely be applied to the environmental management of pandemic influenza. Laundry and solid waste management can be performed as usual.

While some assumptions can be made about the behavior of a pandemic virus, the exact characteristics of the virus cannot be known in advance. Influenza viruses are genetically variable, and transmissibility is difficult to predict. As a result, this guidance is subject to change as the unique epidemiologic characteristics of a pandemic influenza virus become known during the course of the pandemic period. Although seasonal influenza A and B viruses are not thought to spread predominantly via airborne routes of transmission, it is possible that a pandemic influenza virus may exhibit properties that would facilitate airborne transmission. Should this occur, environmental management strategies may be revised to incorporate measures to prevent exposure to infectious aerosols.

Introduction

Influenza viruses are transmitted person to person predominantly via mucous membrane exposure to infectious respiratory secretions discharged initially as large droplets (a form of direct contact). These droplets can transmit influenza virus to susceptible persons present in the occupied space within < 6 feet from the source patient. Large droplets, however, tend to settle out of the air in a relatively short period and eventually come to rest on a variety of environmental surfaces. Environmental surfaces in homes, healthcare facilities, schools, and other places of business include, but are not limited to, large housekeeping surfaces (e.g., floors, walls, windows, tables and countertops), equipment and appliances, and surfaces frequently touched by hand (e.g., door handles, light switches, bathroom and kitchen surfaces, phones, computers). Aerosolization of virus (i.e., production of tiny particles) from respiratory secretions can occur, but exposure to these particles is not considered to be a primary means of spread.

Management of Environmental Surfaces Background:
Environmental Reservoirs and Hand Transfer of Virus

Influenza A and B viruses can persist on dry environmental surfaces, both porous and nonporous. Laboratory studies conducted to evaluate this persistence document survival periods that vary widely in length, depending on environmental factors. Low relative

humidity levels (i.e., < 50%) and cool, ambient temperatures are associated with longer periods of activity. Influenza A virus can survive on hard, nonporous surfaces (e.g., stainless steel, hard plastic) for 24 – 48 hours and on porous materials (e.g., cloth, paper) for < 8 – 12 hours at ambient temperatures. Virus persistence on surfaces increases up to 72 hours when those surfaces are moist or wet. Early laboratory studies with the PR-8 strain of influenza virus recovered infectious virus from cotton fabric after several weeks. However, the extent to which these surfaces and materials contributed to actual spread of infection was not determined. Influenza virus persistence on hands also varied widely. One early study demonstrated that dried influenza virus can persist on hands for at least 3 hours, whereas more recent studies have shown that virus can remain stable on the hands for ≤ 5 minutes. Infectious virus can be transferred to hands from nonporous surfaces for at least 2 – 8 hours during periods of heavy viral shedding in respiratory secretions. Virus transfer from porous materials to the hands is much less efficient, being severely affected by rapid drying. In this instance, infectious virus was transferred at detectable levels to the hands for only 15 minutes.

A recent study has demonstrated the potential for widespread dispersion of influenza viruses to a variety of frequently touched surfaces in homes and childcare centers. This study used reverse transcriptase polymerase chain reaction (RT-PCR) to detect influenza virus A RNA on surfaces. While this study did not evaluate the viability of influenza virus, it did demonstrate the extent to which virus can contaminate the environment, especially when infected persons are present and actively shedding virus in respiratory secretions. Influenza viral RNA was detected frequently on surfaces such as refrigerator handles, phone receivers, TV remotes, and other surfaces in kitchens (e.g., microwave ovens). Viral RNA was found less frequently on toys in day care centers, and this may be due to day care center policies addressing the routine cleaning of toys.

Environmental surfaces can serve as reservoirs of infectious virus, although there is no evidence that influenza virus infection can be transmitted **directly** from environmental surfaces. While there is little or no evidence to support the potential for significant resuspension of influenza viruses into the air from objects and surfaces, hand transfer of virus from surfaces to mucous membranes is estimated to be an important factor in the transmission of influenza virus infection among groups of people (e.g., coworkers, family members). Transfer of non-influenza respiratory viruses from objects and environmental surfaces to hands has been demonstrated in several laboratory studies. Another study using bacteriophage ΦX174 showed how virus can be spread in a simulated household setting via the hands of volunteer participants.

Cleaning and Disinfection of Environmental Surfaces

Cleaning and disinfection can reduce the numbers of viruses present on environmental surfaces, which can help to minimize hand transfer of virus. Influenza viruses are enveloped, lipid-containing viruses, and as such are readily sensitive to a wide variety of chemical disinfectants. While historically there has been a clear distinction between pandemic strains of influenza viruses and seasonal influenza viruses based on antigenic specificity, there is no new evidence to suggest that pandemic influenza viruses are biophysically or biochemically different than seasonal influenza virus. Although

pandemic influenza viruses may cause severe disease, influenza viruses are among the least resistant microorganisms to chemical disinfection. Therefore, routine cleaning and disinfection strategies used during influenza seasons could be applied for the environmental management of pandemic influenza.

Figure 1. Relative Resistance Levels of Microorganisms to Chemical Disinfection (High to Low Levels in Descending Order)

Bacterial Spores
↓
Mycobacteria
↓
Non-lipid or small viruses
↓
Fungi
↓
Vegetative bacteria
↓
Lipid or medium-sized viruses (influenza viruses)

Cleaning with soap or detergent in water is the first step in surface treatment. Cleaning will remove soil and organic matter that would otherwise reduce the effectiveness of the disinfection step that follows. An important point to remember is that disinfectants will not work if the surface to be disinfected is not clean before applying the disinfectant. In other words, cleaning and disinfection are two entirely separate procedures.

There is no indication for cleaning procedures that differ from what is done routinely. Any commercially available soap or detergent can be used. Water can be cold or warm, or as recommended on the label of the cleaning product used (if a specific temperature is listed). Influenza viruses can be inactivated by many low or intermediate-level disinfectants containing any of the following ingredients:

1. Chlorine or hypochlorite
2. Aldehydes
3. Quaternary ammonium compounds [quats]
4. Phenolics
5. Alcohols
6. Peroxygen compounds

Use of disinfectants registered by the U.S. Environmental Protection Agency (EPA) is recommended whenever these are available. Lists of all registered disinfectants can be found at http://www.epa.gov/oppad001/chemregindex.htm. Many, if not all, of these products indicate potency for several target pathogens on the label. There are approximately 400 registered disinfectants with human influenza A and/or B listed on the

product label, and all will inactivate influenza viruses when used according to manufacturer instructions.

Cleaning Techniques

Cleaning the premises refers to the physical removal of organic matter, thus exposing the pathogens to the killing power of the disinfectant. Chlorine-based disinfectants are especially problematic in this regard. The cleaning procedure may involve two steps, a dry cleaning followed by a wet cleaning. The process of dry cleaning removes the organic material before the wet cleaning occurs. With the dry cleaning residual dirt, debris, stains, and organic matter, which might neutralize the disinfectant, must be removed first.

There are four basic steps to the wet cleaning process: soaking, washing, rinsing, and drying. With wet cleaning, allow a soaking time to loosen debris so it can easily be removed with a brush or sprayer. Steam and high-pressure washers are very useful for cleaning porous surfaces during wet cleaning. Hot water of at least 200°F should be used for wet cleaning. Hot water is far more effective than cold water at killing bacteria. Hot water can also be used in pressure sprayers. A detergent may be added to the sprayer to increase its effectiveness. All spray should be applied at a minimum of 200 psi (pounds per square inch) for good penetration. However, this amount of pressure could blow holes in aging materials or a thin cover. Care should be taken not to get the spray into electrical motors. Duct tape can be used to cover the slots in the motor housing. A systematic approach to spraying should be used, such as starting at the back of the facility and working toward the front, spraying the ceiling first, then the walls, and finally the floor. A thorough rinsing with clean water afterwards removes the detergent and any lingering organic debris and pathogenic organisms that could interfere with the effectiveness of the disinfectant to be used. Rinsing will also decrease the possibility of harm to any animals present on the premises by accidental absorption of any residual detergent or soap.

The final step of cleaning is letting the wet areas dry quickly and thoroughly. If the facility is not dried properly the excess moisture will result in the multiplication of bacteria to even higher levels than before the cleaning! Thus, improper cleaning can do more harm than good. A proper cleaning should remove more than 90% of the pathogens. Once the facility has been properly cleaned and dried thoroughly, then the disinfection procedure can begin.

Disinfection

Disinfectants are chemical agents that kill pathogens on contact. Disinfection is the destruction of all vegetative forms of microorganisms, but the spores may not be destroyed. There are some basic principles to consider for disinfection. An important point to remember is "hard" water can neutralize the activity of some disinfectants. In addition, some disinfectant solutions may only be active for a few days after mixing or preparing.

It is important to select a disinfectant that will be active against a wide spectrum of pathogenic organisms under the conditions in which it will generally be used. These

conditions include hard water, contamination with organic debris, and the potential for toxicity or damage to environmental surfaces, skin, and clothing. It is also important to keep solutions clean and freshly made as per the manufacturer's directions. OSHA regulations concerning the disinfectant must also be considered.

All disinfectants, whether they are sprays, foams, aerosols or fumigants, work best at temperatures above 65°F. Temperatures for chlorine- and iodine-based disinfectants should not exceed 110°F. Disinfectants must have sufficient contact time with the surfaces to which they are applied in order to allow them to kill the pathogens concerned. Few disinfectants kill instantaneously. The amount of contact time needed will vary with the product used and the pathogen. A quick splash of a dirty boot into a footbath will not accomplish anything except to give a false sense of security. Usually 20-30 minutes is a sufficient contact time for most disinfectants. Flu viruses may be inactivated by chemical disinfectants such these:

- Chlorine or sodium hypochlorite (diluted household bleach)
- Aldehydes (formaldehyde and glutaraldehyde are effective but quite toxic)
- Quaternary ammonium compounds (such as Lysol spray disinfectant)
- Phenolics (pine oil products, some mouthwashes)
- Alcohols and peroxygen compounds (hydrogen peroxide)

Cleaning and Surface Disinfection Strategies in Healthcare Facilities: The basic strategies for management of environmental surfaces in healthcare facilities are discussed in the CDC/HICPAC "Guidelines for Environmental Infection Control in Health-Care Facilities," published in 2003. Additional guidance is available from the World Health Organization. The guidance that follows is drawn from these resources.

1. Environmental services staff should use appropriate personal protective equipment (PPE) (i.e., household gloves) as needed when preparing disinfectant and cleaning solutions and when applying these solutions by hand to wipes and/or surfaces.
2. Clean and disinfect surfaces that are touched routinely by hand (e.g., doorknobs, bed rails, bedside- and over-bed tables, bathroom surfaces, safety/pull-up bars, television controls, call buttons) on a more frequent schedule than that used for large housekeeping surfaces.
3. Follow manufacturer instructions for proper use of disinfectants, especially with regard to the proper concentration of product and the time the product should be in contact with the surface being disinfected.
4. Consult medical equipment instructions for appropriate methods of cleaning and disinfection for these items, and consider using barrier coverings for equipment that may be hard to clean or has accessible electronic components.
5. Clean large housekeeping surfaces (e.g., floors) in patient-care areas with detergent/disinfectants in accordance with manufacturer instructions on a regular basis as per facility policy (i.e., at least daily and terminally cleaned at patient discharge).

6. Avoid large-surface cleaning methods that produce mists or aerosols or disperse dust in patient-care areas (e.g., use wet dusting techniques, wipe application of cleaning and/or disinfectant solutions).
7. Detergent and water are adequate for cleaning surfaces in non-patient-care areas (e.g., administrative offices).
8. Follow facility procedures to ensure the cleanliness of cleaning and/or disinfectant solutions, rinse water, mop heads, and cloths (e.g., separate buckets for solutions and rinse water, frequent exchanges of solutions, replacing soiled mops heads and cloths with clean items, using microfiber mopping methods).
9. Avoid placing influenza patients in rooms with carpeting if possible; use vacuums equipped with high-efficiency particulate air (HEPA) filtration when vacuuming carpets in patient-care areas.
10. Educate patients, staff, and visitors about the importance of hand washing and hand hygiene, emphasizing "hand awareness" (i.e., touching nose, mouth, or eyes after touching a potentially contaminated surface or object).

Cleaning and Surface Disinfection in Homes, Schools, Businesses, and Community Settings (including public transportation vehicles): The adherence to good personal hygiene, proper hand hygiene, respiratory hygiene, and cough etiquette is especially important for preventing the spread of influenza in non-healthcare settings in the community. Schools may dismiss classes, and businesses may consider implementing social distancing as an influenza control strategy early on during a moderate or severe influenza pandemic. When schools close or businesses interrupt operations for a short period of time, there is no beneficial role of extensive environmental cleaning because influenza viruses do not generally remain viable on most environmental surfaces (desks, phones, door knobs) for longer than a few hours. While school remains in session and when businesses reduce onsite staffing, environmental infection control for non-healthcare settings focuses on regular cleaning for most surfaces and targeted use of disinfection for surfaces touched frequently by hand:

1. Keep housekeeping surfaces and countertops clean of visible soil by cleaning with detergents and water or proprietary cleaners, followed by rinsing with water. Repeated application of disinfectants to table and desktop surfaces is unnecessary. Frequent use of room air deodorizers to disinfect the air is not recommended.
2. Follow label instructions carefully when using disinfectants and cleaners, noting any hazard advisories and indications for using personal protective items (such as household gloves). Do not mix disinfectants and cleaners unless the labels indicate it is safe to do so. Combining certain products (such as chlorine bleach and ammonia cleaners) can be harmful, resulting in serious injury or death.
3. Clean and disinfect bathroom surfaces on a regular basis using EPA-registered detergent/disinfectants. Alternatively, clean surfaces first with detergent and water and then disinfect with an EPA-registered disinfectant in accordance with manufacturer instructions. (Note: Disinfectant products available in grocery stores or hardware stores are all EPA-registered.)
4. If EPA-registered disinfectants are not available, use a dilute solution (1:100 volume/volume, approximately 600 parts per million [ppm]) of household

chlorine bleach (sodium hypochlorite) to disinfect bathroom surfaces. To prepare this solution, add ¼ cup of bleach to a gallon of clean water, or 1 tablespoon of bleach to a quart of clean water. Apply to a cleaned surface, preferably with a cloth moistened with the bleach solution, and allow the surface to remain wet for minimally 3 – 5 minutes.

5. Clean and disinfect commonly touched surfaces in the home with a detergent/disinfectant in accordance with label instructions (e.g., microwaves, refrigerator door handles, door handles).
6. Wipe frequently touched electronic items (e.g., remote controls, hand-held gaming devices) with hand-sanitizer cloths.
7. Carry hand-sanitizer cloths in cars to use on hands and surfaces in cars.

Laundry

Although influenza viruses can persist on porous materials, the transfer of these viruses from sheets, bedding, and clothing is not as efficient a process as that involving non-porous surfaces. Therefore, management of laundry in healthcare facilities and in the home can be accomplished with existing procedures appropriate for these settings:

1. Handle soiled clothing and linens during collection with a minimum amount of agitation and fluffing;
2. Healthcare workers and laundry personnel should follow established facility safety procedures (minimum recommendation is for glove use) when handling soiled linens.
3. Hand washing or hand hygiene should be done in the home after sorting laundry and adding the clothing and linens to the washer.
4. Use detergents, laundry additives, and appropriate water temperature as per routine laundry procedures. Follow manufacturer instructions for detergent and bleach use.
5. Use a temperature setting for drying clothes and linens appropriate for the fabrics in the load. Line- or air-drying can be used to dry items when machine drying is not indicated.
6. Clean your hands before removing clean laundry from the washer or dryer, especially if you have coughed or sneezed onto your hands.

Routine Solid Wastes and Regulated Medical Wastes

There is no evidence to suggest that either pandemic influenza virus or seasonal influenza viruses can be spread via contact with either routine solid wastes or regulated medical wastes generated in a healthcare facility or in a home, school, or business. Therefore, current waste management strategies can continue to be used while influenza viruses are in circulation:

1. Healthcare Facilities:
    a. Use Standard Precautions when working with solid waste that may be contaminated with influenza virus outside of patient isolation areas.
    b. Use PPE as is currently required by your state (e.g., gloves) when handling open waste containers.

c. No changes in waste containment need be made during periods of influenza activity (e.g., single bag lining for routine clinic wastes, appropriate labeled containment for regulated medical wastes).
d. Current medical waste treatment procedures can be used to treat regulated medical waste in accordance with state and federal regulations.
e. Treated medical waste can be safely deposited in municipal solid waste landfills as per normal procedures.

2. Homes, Schools, and Businesses:
   a. Disposable tissues used to contain coughs, sneezes, or nasal discharges can be tossed in waste receptacles; no special precautions are required.
   b. Hand washing or hand hygiene should be done after emptying these waste containers.
   c. Barring specific state routine solid waste or medical waste regulations to the contrary, these wastes are considered routine solid wastes in the community that can be sent to municipal solid waste landfills without treatment.

Control of Pandemic Flu Virus on Environmental Surfaces in Homes and Public Places

This fact sheet explains how cleaning and disinfecting surfaces in homes and public places (like schools) can help to prevent the spread of pandemic influenza (flu). This fact sheet will be updated as needed.

How Flu Viruses Spread

1. A flu pandemic is an outbreak of illness caused by a new flu virus that spreads around the world. Because the virus is new to people, nearly everyone will be at risk of getting it.
2. The main way that illnesses like colds and flu are spread is from person to person by coughs and sneezes. This can happen when droplets from a cough or sneeze of an infected person move through the air and make contact with the mouth or nose of people nearby.
3. Droplets from an infected person can also make contact with environmental surfaces (like the tops of tables). The virus can then be spread from those surfaces if a person touches the droplet contaminated surface and then touches his or her own eyes, mouth, or nose before washing his or her hands.
4. The virus also can be spread when an infected person coughs or sneezes into his or her hands and then touches a surface (like a phone, remote control, or toy) before washing his or her hands. Another person could become sick if he or she touches that surface and then touches his or her own eyes, mouth, or nose before washing. Flu viruses and other germs can live 2 hours or longer on hard environmental surfaces like tables, doorknobs, and desks. Surfaces are likely to be touched much more often than they can be cleaned and disinfected. Thus, it is important to wash your hands often, keep your hands away from your face, and keep such surfaces clean to help prevent the spread of germs.

How to Stop the Spread of Pandemic Flu Virus from Environmental Surfaces
Use good hygiene practices

1. Cover your mouth and nose with a tissue when you cough or sneeze; put the used tissue in a wastebasket and clean your hands.
2. Cover your mouth and nose with your upper sleeve (not your hands) if you do not have a tissue and need to cough or sneeze.
3. Clean your hands as soon as possible after coughing, sneezing, or blowing your nose.
    a. Use soap and water and wash your hands for 15 - 20 seconds; or
    b. Use alcohol-based hand wipes or alcohol-based (60-95% alcohol) gel hand sanitizers; rub these on the hands until the liquid or gel dries.
4. Clean your hands often when you or others are sick, especially if you touch your mouth, nose, and eyes.
5. Always clean your hands before eating.
6. Carry alcohol-based hand wipes or alcohol-based (60-95% alcohol) hand-sanitizing gels with you to clean your hands when you are out in public.
7. Teach your children to use these hygiene practices because germs are often spread at school.

Clean and disinfect hard surfaces and items in homes and schools

1. Follow label instructions carefully when using disinfectants and cleaners.
    a. Pay attention to any hazard warnings and instructions on the labels for using personal protective items (such as household gloves).
    b. Do not mix disinfectants and cleaners unless the labels indicate it is safe to do so. Combining certain products (such as chlorine bleach and ammonia cleaners) can be harmful, resulting in serious injury or death.
2. Keep hard surfaces like kitchen countertops, tabletops, desktops, and bathroom surfaces clean and disinfected.
    a. Clean the surface with a commercial product that is both a detergent (cleans) and a disinfectant (kills germs). These products can be used when surfaces are not visibly dirty.
    b. Another way to do this is to wash the surface with a general household cleaner (soap or detergent), rinse with water, and follow with a disinfectant. This method should be used for visibly dirty surfaces.
    c. Use disinfectants on surfaces that are touched often. Clean the surface as explained above before using disinfectants.
        i. If disinfectants are not available, use a chlorine bleach solution made by adding 1 tablespoon of bleach to a quart (4 cups) of water; use a cloth to apply this to surfaces and let stand for 3 – 5 minutes before rinsing with clean water. (For a larger supply of disinfectant, add ¼ cup of bleach to a gallon [16 cups] of water.)
        ii. Wear gloves to protect your hands when working with strong bleach solutions.

3. Keep surfaces touched by more than one person clean and disinfected. Examples of these surfaces include doorknobs, refrigerator door handles, and microwaves.
    a. Clean with a combination detergent and disinfectant product; or use a cleaner first, rinse the surface thoroughly, and then follow with a disinfectant.
    b. Use sanitizer cloths to wipe electronic items that are touched often, such as phones, computers, remote controls, and hand-held games.
    c. Use sanitizer cloths to wipe car door handles, the steering wheel, and the gearshift.

Use recommended laundry practices

1. Gently gather soiled clothing, bedding, and linens without creating a lot of motion or fluffing; for example, do not shake sheets when removing them from the bed.
2. Clean your hands after handling soiled laundry items.
3. Use washing machine cycles, detergents, and laundry additives (like softener) as you normally do; follow label instructions for detergents and additives.
4. Dry the cleaned laundry items as you normally do, selecting the dryer temperature for the types of fabrics in the load. Line- or air-drying can be used to dry items when machine drying is not indicated.
5. Clean your hands before removing clean laundry from the washer or dryer, especially if you have coughed or sneezed on your hands.

Use recommended waste disposal practices

1. Toss tissues into wastebaskets after they have been used for coughs, sneezes, and blowing your nose.
2. Place wastebaskets where they are easy to use.
3. Avoid touching used tissues and other waste when emptying wastebaskets.
4. Clean your hands after emptying wastebaskets.

Additional Information

Disinfectant products (sanitizer cloths and liquid disinfectants) available from grocery stores, hardware stores, and commercial cleaning product suppliers have been registered with the U.S. Environmental Protection Agency (EPA). Always follow label instructions carefully when using these products. For more information about EPA-registered disinfectants, visit http://www.epa.gov/oppad001/chemregindex.htm. For more information about cleaning and disinfection of surfaces to protect against pandemic influenza virus, consult "Interim Guidance on Environmental of Pandemic Influenza Virus." To learn more about pandemic influenza, visit http://www.flu.gov.

APPENDIX L:
Infection Control Guidelines for Healthcare Workers

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-antimicrobial or antimicrobial) and water. In the absence of visible soiling of hands, approved alcohol-based products for hand disinfection are preferred over antimicrobial or plain soap and water because of their superior microbicidal activity, reduced drying of the skin and convenience.
Personal protective equipment (PPE)	PPE includes gloves, gowns, and face/eye protection. See rows below for details on appropriate use of PPE's
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 or procedure 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 and 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 6 feet) from persons who are not ill.
Droplet Precautions	**See** http://www.cdc.gov/hicpac/2007IP/2007ip_part3.html
Patient placement	Place patients with influenza into private rooms or cohort with other patients with influenza. Keep room doors closed.
Personal protective equipment (PPE)	Wear a surgical or procedure mask for entry into patient room. Wear other PPE as recommended for standard precautions.
Patient transport	Limit patient movement outside of room to medically necessary purposes; have patient wear a procedure or surgical mask when outside the room.
Other	Follow standard precautions and facility procedures for handling linen, 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, bronchoscopy, nebulizer treatment, suctioning) healthcare personnel should wear gloves, gown, face/eye protection and a fit-tested N-95 respiratory or other appropriate particulate respirator.

BOX 2. RESPIRATORY HYGIENE/COUGH ETIQUETTE

To contain respiratory secretions, all persons with signs and symptoms of a respiratory infection, regardless of presumed cause, should be instructed to:

- Cover the nose/mouth when coughing or sneezing.
- Use tissues to contain respiratory secretions.
- Dispose of tissues in the nearest waste receptacle after use.
- Perform hand hygiene after contact with respiratory secretions and contaminated objects/materials.

Healthcare facilities should ensure the availability of materials for adhering to Respiratory Hygiene/Cough Etiquette in waiting areas for patients and visitors:

- Provide tissues and no-touch receptacles for used tissue disposal.
- Provide conveniently located dispensers of alcohol-based hand rub.
- Provide soap and disposable towels for hand washing where sinks are available.

Masking and separation of persons with symptoms of respiratory infection

During periods of increased respiratory infection in the community, persons who are coughing should be offered either a procedure mask (i.e., with ear loops) or a surgical mask (i.e., with ties) to contain respiratory secretions. Coughing persons should be encouraged to sit as far away as possible (at least 6 feet) from others in common waiting areas. Some facilities may wish to institute this recommendation year-round.

APPENDIX M:
Acute Care Hospital Recommendations

The OSDH recommends hospitals develop policies and procedures that address **early** 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 all public entrances (e.g., emergency departments, outpatient clinics) instructing persons with acute 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.

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

    b. Perform triage of patients calling for medical appointments for influenza symptoms such as;

        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; and

        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 6 feet) from other patients.

e. Recommend "source control" measures (Respiratory Hygiene/Cough Etiquette) to limit dissemination of influenza virus from respiratory secretions.

f. Recommend the posting of signs that explain 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; and

   iv. Perform hand hygiene after contact with respiratory secretions.

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 6 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. Because enough single-patient rooms may not be available, 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. The equipment should be cleaned and disinfected between 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 within a healthcare setting.

   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 cancelling elective surgeries.

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

APPENDIX N:
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 transports 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., intubation, CPR, open airway suctioning) during pre-hospital care, unless medically necessary to support life. Prioritize the use of N-95 respirators during these procedures.

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.

APPENDIX O:
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" (Respiratory Hygiene/Cough Etiquette) 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.

c. Ensure the availability of materials in waiting areas for patients and visitors.

d. Provide tissues and no-touch receptacles (e.g., waste containers with pedal-operated lid or uncovered waste container) for used tissue disposal.

e. Provide conveniently located dispensers of alcohol-based hand rub.

f. 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 6 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 (ILI) 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 P:
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; and

   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 (ILI). 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.

APPENDIX Q:
Long Term Care and Other Residential Facility Recommendations

Nursing homes and other residential facilities - Pandemic influenza can be introduced through facility personnel and visitors; therefore 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 educating 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, at least 24 hours after febrile symptoms have resolved without fever-reducing medications.

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 or if an increase in residents with influenza symptoms is noticed.

    b. Implement droplet precautions if pandemic influenza symptoms are present, 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:
Recommendations for Care of Individuals with Influenza in a Home or Alternate Care Site

Most patients with influenza (flu) 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, frequent hand hygiene, Respiratory Hygiene/Cough Etiquette and appropriate environmental cleaning). Infection within the household may be minimized if a primary caregiver is designated; this should ideally be someone who does not have an underlying condition that places them at increased risk of severe influenza disease. Although no studies have assessed the use of masks at home to decrease the spread of infection, use of surgical or procedure masks by the patient and/or caregiver during interactions may be of benefit.

The following information can help you provide safer care at home for sick persons with influenza.

How Flu Spreads

The main way that influenza viruses are spread is through respiratory droplets of coughs and sneezes. This can happen when droplets from a cough or sneeze of an infected person are deposited directly onto people nearby. Influenza viruses may also be spread when a person touches respiratory droplets on another person or an object and then touches their own mouth or nose (or someone else's mouth or nose) before washing their hands.

People with flu who are cared for at home should

a. Check with their health care provider about any special care they might need if they are pregnant or have a health condition such as diabetes, heart disease, asthma, or emphysema.

b. Check with their health care provider about whether antiviral medications are recommended.

c. Stay home for 7 days after the start of illness and until fever is gone for at least 24 hours.

d. Get plenty of rest.

e. Drink clear fluids (such as water, broth, sports drinks, electrolyte beverages for infants) to prevent dehydration. Dehydrating drinks such as coffee, tea, and carbonated beverages should be consumed in moderation.

f. Cover coughs and sneezes using a disposable tissue or one's sleeve.

g. Clean hands with soap and water or an alcohol-based hand rub often and especially after using tissues and after coughing or sneezing into hands.

h. Avoid close contact with others – do not go to work or school while ill.

i. Be watchful for emergency warning signs (see below) that might indicate you need to seek medical attention.

Medications to Help Lessen Symptoms of the Flu
Check with your healthcare provider or pharmacist for correct, safe use of medications

Antiviral medications can sometimes help lessen influenza symptoms, but require a prescription. Most people do not need these antiviral drugs to fully recover from the flu. However, persons at higher risk for severe flu complications, or those with severe flu illness who require hospitalization, might benefit from antiviral medications. Antiviral medications are available for persons 2 weeks of age and older. In 2009, an Emergency Use Authorization (EUA) was approved for use of antiviral medications in children > 3 months and < 1 year, so during a pandemic, the age restriction may be changed. If you have other chronic illnesses ask your healthcare provider whether you need antiviral medication.

Influenza infections can lead to or occur along with bacterial infections. Therefore, some people will also need to take antibiotics. More severe or prolonged illness or illness that seems to get better, but then gets worse again may be an indication that a person has a bacterial infection. Check with your healthcare provider if you have concerns.

Warning! Do ***not*** give aspirin (acetylsalicylic acid) to children or teenagers who have the flu; this can cause a rare but serious illness called Reye's syndrome.

a. Check ingredient labels on over-the-counter cold and flu medications to see if they contain aspirin.

b. Teenagers with the flu can take medicines ***without*** aspirin, such as acetaminophen (Tylenol®) and ibuprofen (Advil®, Motrin®, Nuprin®) to relieve symptoms.

c. Children younger than 2 years of age should not be given over-the-counter cold medications without first consulting with a healthcare provider.

d. The safest care for flu symptoms in children younger than 2 years of age is using a cool-mist humidifier and a suction bulb to help clear away mucus.

Fevers and aches can be treated with acetaminophen (Tylenol®) or ibuprofen (Advil®, Motrin®, Nuprin®) or nonsteroidal anti-inflammatory drugs (NSAIDS). Examples of these kinds of medications include:

Generic Name	Brand Name(s)
Acetaminophen	Tylenol®
Ibuprofen	Advil®, Motrin®, Nuprin®
Naproxen	Aleve®

e. Over-the-counter cold and flu medications used according to the package instructions may help lessen some symptoms such as cough and congestion. However, these medications will not lessen how contagious a person is or how long a person can spread influenza to others.

f. Avoid overdosing. Check the ingredients on the package label to see if other symptom-reducing medications already contain acetaminophen or ibuprofen before taking additional doses of these medications.

g. Patients with kidney disease or stomach problems should check with their health care provider before taking any non-steroidal anti-inflammatory drugs (NSAIDS).

When to Seek Emergency Medical Care
Get medical care right away if the sick person at home:

a. Has difficulty breathing or chest pain;

b. Has purple or blue discoloration of the lips;

c. Is repeatedly vomiting and unable to keep liquids down;

d. Has signs of dehydration such as dizziness when standing, absence of urination, or in infants, a lack of tears when they cry;

e. Has seizures (for example, uncontrolled convulsions); and

f. Is less responsive than normal or becomes confused.

Steps to Lessen the Spread of Flu in the Home

When providing care to a household member who is sick with influenza, the most important ways to protect yourself and others who are not sick are to:

a. Keep the sick person away from other people as much as possible (see "placement of the sick person below").

b. Remind the sick person to cover their nose and mouth with a disposable tissue when coughing or sneezing and to clean their hands with soap and water or an alcohol-based hand rub often, especially after coughing and/or sneezing.

c. Have everyone in the household clean their hands often, using soap and water or an alcohol-based hand rub.

d. Ask your healthcare provide if household contacts of the sick person, particularly those contacts that may have chronic health conditions, should take antiviral medications such as oseltemivir (Tamiflu®) or zanamivir (Relenza®) to prevent the flu.

Placement of the sick person

Keep the sick person in a room separate from the common areas of the house (i.e., a spare bedroom with its own bathroom), if that is possible. Keep the sickroom door closed.

a. Unless necessary for medical care, persons with the flu should not leave the home when they have a fever or during the time that they are most likely to spread their infection to others (7 days after onset of symptoms in adults, and 10 days after onset of symptoms in children).

b. If persons with the flu need to leave the home (for example, for medical care), they should cover their nose and mouth when coughing or sneezing and wear a loose-fitting (surgical) mask if available.

c. Have the sick person wear a surgical mask if they need to be in a common area of the house near other persons.

d. If possible, sick persons should use a separate bathroom. This bathroom should be cleaned daily with household disinfectant (see below).

Protect other persons in the home

a. The sick person should not have visitors other than caregivers. Other forms of contact such as phone calls, email, etc. are recommended.

b. If possible, have only one adult in the home take care of the sick person.

c. Avoid having pregnant women care for the sick person. (Pregnant women are at increased risk of influenza-related complications).

d. All persons in the household should clean their hands with soap and water or an alcohol-based hand rub frequently, including after every contact with the sick person or anything in the person's room or bathroom.

e. Use paper towels for drying hands after hand washing, or dedicate cloth towels to each person in the household. For example, have different colored towels for each person.

f. If possible, consideration should be given to maintaining good ventilation in shared household areas (e.g., keeping windows open in restrooms, kitchen, bathroom, etc.).

g. Antivirals can be used to prevent the flu, so check with your healthcare provider to see if some persons in the home should use antiviral medications.

If you are the caregiver

a. Avoid being in close face-to-face contact with the sick person.

b. When holding small children who are sick, place their chin on your shoulder so that they will not cough in your face.

c. Clean your hands with soap and water or use an alcohol-based hand rub after you touch the sick person or handle used tissues, or laundry.

d. Talk to your health care provider about taking antiviral medication to prevent the caregiver from getting the flu.

e. Monitor yourself and household members for flu symptoms and contact your health care provider if symptoms occur.

Using Facemasks or Respirators

a. Avoid close contact (less than about 6 feet away) with the sick person as much as possible.

b. If you must have close contact with the sick person (for example, holding a sick infant), spend the least amount of time possible in close contact and wear a surgical mask when in their presence.

c. Surgical masks may be purchased at a pharmacy, building supply or hardware store.

d. Wear a mask if you help a sick person with respiratory treatments using a nebulizer or inhaler, as directed by their doctor. Respiratory treatments should be performed in a separate room away from common areas of the house when at all possible.

e. Used surgical masks should be removed and placed immediately in the regular trash so they don't touch anything else.

f. Masks should be designated for use by only one person. If a reusable fabric mask is used, it should be laundered with normal laundry detergent and tumble-dried in a hot dryer.

g. After you take off a mask, clean your hands with soap and water or an alcohol-based hand sanitizer.

Household Cleaning, Laundry, and Waste Disposal

a. Throw away tissues and other disposable items used by the sick person in the regular trash. Wash your hands after touching used tissues and similar waste.

b. Keep surfaces near the sick person clean (especially bedside tables, surfaces in the bathroom, and toys for children) then use a household disinfectant according to directions on the product label.

c. Linens, eating utensils, and dishes belonging to those who are sick do not need to be cleaned separately, but these items should not be shared without washing thoroughly in between each use.

d. Wash linens (such as bed sheets and towels) by using household laundry soap and tumble dry on a hot setting. Avoid "hugging" laundry prior to washing it to prevent contaminating yourself and your clothing. Clean your hands with soap and water or alcohol-based hand rub right after handling dirty laundry.

e. Eating utensils should be washed either in a dishwasher or by hand with water and soap.

Care of Pandemic Influenza Patients at Alternate Care Site

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 S:
Clinical Guidelines for 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 can be found at the Centers for Disease Control and Prevention (CDC) website (www.cdc.gov/flu) and in the HHS Pandemic Influenza Plan Supplements (http:www.flu.gov/planning-preparedness/federal/hhspandemicinfluenzaplan.pdf).

Supplement 1. Pandemic Influenza Surveillance
Supplement 2. Laboratory Diagnostics
Supplement 3. Healthcare Planning
Supplement 4. Infection Control
Supplement 5. Clinical Guidelines
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 3-6 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, however, this is not the case with influenza. During aerosol-producing

procedures such as bronchoscopy, intubation, CPR, open airway suctioning, and sputum induction, droplets may travel greater than 3-6 feet. In these situations, N-95 respirators are recommended for healthcare workers in the room.

See Essential Element #7 Infection Control 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 should ask 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°C **(100.4°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. Patients with the 2009 H1N1 strain sometimes presented with gastrointestinal symptoms (primarily diarrhea) in addition to fever, cough and/or sore throat. During a pandemic, updates on other clinical presentations will be provided at: http://www.flu.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. Report each patient who meets the clinical and epidemiological criteria for pandemic influenza to the state or local health department according to guidelines in place at that time. These guidelines are subject to change based upon multiple variables. OSDH will post current guidelines for reporting of novel or pandemic infections on the OSDH website for each event (www.ok.gov/health).

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 until 24 hours after resolution of symptoms. Healthcare personnel should wear appropriate PPE as described in Appendix G. 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. 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 effectiveness and antiviral susceptibilities. 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.

4. As with seasonal influenza, reverse transcriptase polymerase chain reaction (RT-PCR) and virus isolation from tissue culture will be the most accurate methods for diagnosing pandemic influenza. Generally, specimens should include combined nasopharyngeal aspirates or nasal swabs and throat swabs, stored at 4°C (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 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 early in the course of the pandemic will be 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 rapid 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. For more specific information go to the CDC website http://www.cdc.gov and the HHS Supplement 7 for inpatient and outpatient treatments strategies. http://www.flu.gov/planning-preparedness/federal/hhspandemicinfluenzaplan.pdf Patients cared for at home should be separated from other household members as much as possible (see Appendix P).

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, 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. Specific data regarding risk factors and complication of the 2009 H1N1 strain can be found at the CDC website http://www.cdc.gov. Risk factors and complications of specific influenza viruses 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.

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 novel influenza A viruses in poultry or swine. 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/swine), 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 influenza-like illness (ILI) which a definitive alternative diagnosis is not immediately apparent* should be questioned about:
  - Travel to an area affected by novel influenza A virus outbreaks in poultry/swine,
  - Direct contact with poultry/swine,
  - Close contact with persons with suspected or confirmed novel influenza, or
  - Occupational exposure to novel influenza viruses (i.e., agricultural, healthcare, laboratory).

- 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 based upon protocols in place at that particular time. These protocols may include the following:
  - Immediately contact the local and state health departments to report the suspected case and to arrange novel influenza testing by RT-PCR.
  - Collect an acceptable specimen: nasopharyngeal swab, nasal swab, or throat swab (contact PHL for guidance on other respiratory samples), and place into viral transport media (VTM) and refrigerate at 4° C until specimen can be transported for testing.
  - Ensure all RT-PCR testing is properly transported to a qualified laboratory, such as a state health department laboratory or the CDC Influenza Laboratory, since this testing is not available in hospital laboratories.
  - **Ensure viral culture is only performed 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 and blood cultures,
  - Sputum (in adults), tracheal aspirate and pleural effusion aspirate (if an effusion is present) gram stain and culture,
  - Antibiotic susceptibility testing (encouraged for all bacterial isolates),
  - Multivalent immunofluorescent antibody testing or PCR of nasopharyngeal aspirates or swabs for common viral respiratory pathogens, such as influenza A and B, adenovirus, parainfluenza viruses and respiratory syncytial virus, particularly in children,
  - Legionella and pneumococcal urinary antigen testing, specifically in adults with radiographic evidence of pneumonia,
  - Testing (i.e., PCR) for *M. pneumonia* and *C. pneumoniae*, specifically in adults and children <5 yrs with radiographic pneumonia, and/or
  - 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 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). Respirators (N-95 or higher) are indicated when in the presence of aerosol-producing procedures.

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/swine 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, pregnant women, 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. Diarrhea is commonly present with influenza A H1N1 infections. 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 World Organization for Animal Health (OIE) http://www.oie.int/eng/en_index.htm, the World Health Organization (WHO) www.who.int/en/ and the Centers for Disease Control and Prevention (CDC) www.cdc.gov/flu/.

APPENDIX T:
Criteria for Evaluation of Patients with Possible Novel Influenza

The following criteria are based on the features of the 2009 influenza A (H1N1) 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 may be an uncommon cause of influenza-like illness (ILI); therefore, both clinical and epidemiologic criteria should be met. The criteria will be updated when needed as more data are collected.

Information on the Centers for Disease Control and Prevention (CDC) recommendations on the use of antiviral medications for treatment of human infections with avian influenza A (H7N9) and interim guidance for infection control within healthcare settings when caring for patients under investigation of avian influenza A (H7N9) virus infection can be accessed at: http://www.cdc.gov/flu/avianflu/h7n9-healthprofessionals.htm.

1. **Clinical criteria** - Any suspected cases of human infection with a novel influenza virus must first meet the criteria for ILI, defined as a temperature of >38°C **(100.4°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.

   Although recent infections with novel influenza virus (2009 H1N1) have commonly resulted in mild to moderate 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 CDC website http://www.cdc.gov/flu.

   Given the large number patients with ILI that clinicians encounter during a typical flu season, laboratory evaluation for novel influenza A viruses during the Interpandemic and Pandemic Alert Periods will be limited to:

   a. Hospitalized patients with severe ILI, including pneumonia, who meet the epidemiologic criteria (see below); or

   b. Certain non-hospitalized patients with ILI and with strong epidemiologic suspicion of novel influenza virus exposure (e.g., close contact with a known or suspected human case of novel influenza); and

   c. Recommendations for the evaluation of patients with respiratory illnesses will be updated throughout a pandemic and can be found on http://www.cdc.gov/flu.

2. **Epidemiologic criteria** - Epidemiologic criteria for evaluation of patients with possible novel influenza are based on the risk of exposure to a novel influenza virus with pandemic potential in designated geographical locations. The incubation period

for seasonal influenza and the 2009 H1N1 pandemic virus ranges from 1 to 4 days. However, the incubation periods for other 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 where novel cases of influenza A have been identified in people or highly pathogenic influenza A outbreaks are occurring in domestic poultry or swine AND

   ii. Had direct or indirect contact with poultry or swine defined as: touching birds or pigs (well-appearing, sick or dead); touching poultry or swine feces or surfaces contaminated with feces, visiting live animal markets, or consuming uncooked poultry or pork products (including eggs or blood) in an affected area; OR

   iii. Had close contact with a person with confirmed or suspected novel influenza. Updated listings of areas affected by avian influenza A (H7N9), avian influenza A (H5N1) and/or 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 CDC website http://www/cdc/gov/flu/.

   Because specific testing for human infection with novel influenza viruses 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 novel influenza. Therefore, during the Interpandemic and Pandemic Alert Periods, seasonal influenza virus infection can be a cause of ILI among returned travelers at any time of the year, including during the summer in the United States. This includes travelers returning from areas of China affected by H7N9 influenza and countries reporting poultry outbreaks of highly pathogenic avian influenza A (H5N1).

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

   i. Persons who work on farms or in live poultry/swine markets,

ii. Veterinarians who treat animals on swine/poultry farms,

iii. Persons who slaughter and process poultry/swine for food production,

iv. Workers in laboratories that handle live animal or novel influenza viruses, and

v. 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 and the CDC website http://www.cdc.gov/flu/.

During the Interpandemic and Pandemic Alert Periods when there is no sustained human-to-human transmission of any novel influenza virus, direct contact with poultry or swine in an affected area or close contact with a case of suspected or confirmed human novel influenza for any reason is required to access testing at the OSDH Public Health Laboratory. During the Pandemic Alert Period, Phases 3 and 4, the majority of human cases of novel influenza will result from animal-to-human transmission. Therefore, a history of direct contact with poultry/swine (well-appearing, sick or dead), consumption of uncooked swine/poultry products or direct exposure to environmental contamination with swine/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 the epidemiologic criteria of most concern.

3. **Other avian influenza A viruses** - Presently, the avian influenza virus of greatest public health concern and monitoring is the influenza A (H7N9) virus. This virus is considered of low pathogenicity to birds but it has the potential to cause severe respiratory illness in people, particularly older adults with at least one underlying medical condition. Other novel influenza A viruses that have caused human disease include the highly pathogenic avian viruses H5N1, 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).

4. **Variant swine influenza A viruses** - In the future, other animal hosts (in addition to poultry or swine) or novel influenza A virus subtypes (in addition to H1N1 or H5N1) might become significantly associated with human disease. If such events occur, this guidance will be updated.

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

Perform all of these steps when novel influenza is suspected.

Patient meets clinical AND epidemiological criteria for novel influenza. (Refer to Appendix T)

- Clinical criteria: Influenza-like illness with temperature > 38° C (100.4° F) PLUS either sore throat or cough.
- Epidemiologic criteria: Exposure history consistent with travel or occupational exposure or contact to a known novel influenza case. Likely incubation period is 1-4 days, maximum of 10 days.

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Institute appropriate infection prevention and control measures.

- Place a surgical or procedure mask on the patient.
- Educate the patient regarding Respiratory Hygiene and Cough Etiquette
- Apply N-95 respirators on healthcare workers (use surgical or procedure masks at minimum).
- Place the patient in a private room. Alternately designate an area to cohort patients with influenza. *Hospital admission should be limited to those with severe complications who cannot be cared for outside the hospital setting. If patients return home, educate family and caregivers regarding infection prevention and control measures.*
- Institute Droplet Precautions and maintain for a minimum of 7 days after onset or at least 24 hours after symptoms resolve, whichever is longer.

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Notify the Oklahoma State Health Department according to protocol in place at that particular time (see http://www.ok.gov/health).

- By telephone at 405-271-4060 (or 800-234-5963) or
- Electronically via the secure web-based Public Health Investigation and Disease Detection of Oklahoma (PHIDDO) system.

→ **Assist public health officials in identification of contacts.**

↓

Collect specimens for diagnostic testing according to protocol in place at that particular time (see http://www.cdc.gov/flu and http://www.ok.gov/health/Disease,_Prevention,_Preparedness/Public_Health_Laboratory).

- Respiratory specimens: nasopharyngeal swab; nasal swab; wash or aspirate; throat swab; and/or tracheal aspirate (if intubated). Use viral transport media, store at 4° C (40° F) until and during transport.
- All specimens: Notify OSDH that specimens will be sent. RT-PCR to confirm novel influenza is only available at OSDH Public Health Laboratory.

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Rule out differential diagnoses.
Using tests with high positive predictive value, rule out possible alternative diagnoses (example: Legionella urine antigen, bacterial cultures, etc.).

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Initiate antiviral treatment, if indicated, according to specific guidelines.
(Refer to Appendix D)

APPENDIX V:
Acronyms

AAR	After Action Report
AAR/IP	After Action Report/Improvement Plan
ACIP	Advisory Committee on Immunization Practices
ADS	Acute Disease Service
AIDS	Acquired Immune Deficiency Syndrome
BSL-3	Biosafety Level-3
CBC	Complete Blood Count
CDC	Centers for Disease Control and Prevention
CERC	Crisis and Emergency Risk Communication
CFHS	Community and Family Health Services
CRA	Countermeasure and Response Administration
DEA	Drug Enforcement Administration
DOD	Department of Defense
DSNS	Division of the Strategic National Stockpile
EMS	Emergency Medical Services
EOC	Emergency Operations Center
EPA	Environmental Protection Agency
EPRS	Emergency Preparedness & Response Service
ESF	Emergency Support Function
EUA	Emergency Use Authorization
FDA	Food and Drug Administration
HHS	U.S. Department of Health and Human Services
HIV	Human Immunodeficiency Virus
HPAI	Highly Pathogenic Avian Influenza
HSEEP	Homeland Security Exercise Evaluation Program
ICS	Incident Command System
IFC	Immunization Field Consultant
IHS	Indian Health Service
ILI	Influenza-like Illness
IND	Investigational New Drug
JIC	Joint Information Center
LRN	Laboratory Response Network
MERCs	Medical Emergency Response Centers
MIPS	Mass Immunization Prophylaxis Strategy
MOU	Memorandum of Understanding
MRC	Medical Reserve Corps
NIMS	National Incident Management System

NIOSH	National Institute for Occupational Safety and Health
NPI	Non-Pharmaceutical Intervention
NSAIDS	Nonsteroidal Anti-Inflammatory Drugs
NVAC	National Vaccine Advisory Committee
OCCHD	Oklahoma City-County Health Department
OCHAS	Oklahoma County Health Alert System
OCME	Office of the Chief Medical Examiner
ODAFF	Oklahoma Department of Agriculture, Food & Forestry
ODMHSAS	Oklahoma Department of Mental Health and Substance Abuse Services
OEM	Oklahoma Emergency Management
OIE	Organization of International Epizootics (World Organization for Animal Health)
OK-HAN	Oklahoma Health Alert Network
OSDH	Oklahoma State Department of Health
OSHA	Occupational Safety and Health Administration
OSIIS	Oklahoma State Immunization Information System
PAPR	Powered Air Purifying Respirator
PEP	Post-Exposure Prophylaxis
PHEP	Public Health Emergency Preparedness
PHIDDO	Public Health Investigation and Disease Detection in Oklahoma (statewide web-based secure disease reporting system)
PHIN	Public Health Information Network
PHL	Public Health Laboratory
POD	Point of Dispensing
PPE	Personal Protective Equipment
PPM	Parts Per Million
RSS	Receiving, Staging and Storing
RT-PCR	Reverse Transcriptase Polymerase Chain Reaction
SAR	Supplied Air Respirator
SARS	Severe Acute Respiratory Syndrome
SNS	Strategic National Stockpile
TASSS	Tulsa Area Syndromic Surveillance System
TCCHD	Tulsa City County Health Department
VAERS	Vaccine Adverse Event Reporting System
VFC	Vaccine for Children (federally-funded immunization program)
VIS	Vaccine Information Sheets
VTM	Viral Transport Media
WHO	World Health Organization
WMD	Weapons of Mass Destruction

APPENDIX W:
Resource Links and References

American Psychiatric Association http://www.psych.org/diasterpsych

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

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

Department of Health and Human Services Centers 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 an Influenza Pandemic, October 2006. http://www.pandemicflu.gov/plan/healthcare/maskguidancehc.html#appA

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

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

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

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National Center for Post-Traumatic Stress Disorder, Department of Veterans' Affairs http://www.ncptsd.va.gov

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

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

Pediatric Infectious Disease Journal, 2003, Feb. 22(2):164-177 Influenza diagnosis and treatment in children: a review of studies on clinically useful tests and antiviral treatment for influenza.

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 Resource Site for Pandemic Flu. http://www.pandemicflu.gov

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

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

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APPENDIX X:
Acknowledgements

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