Governor's Taskforce for Pandemic Influenza Preparedness

Final Report

Utah Department of Health

April 3, 2007

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for
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April 3, 2007

The Honorable Jon M. Huntsman, Jr.
Governor, State of Utah

Dear Governor Huntsman:

On behalf of the members of the Governor's Taskforce for Pandemic Influenza Preparedness, we are pleased to present in this report a series of recommendations that we believe, once implemented, will set into motion actions and activities that will lessen the impacts of a pandemic. This Taskforce was composed of a wide range of community leaders, including those with expertise in health care, business, public safety, public health, and the judicial system, as well as city, county and state elected officials, and representatives of faith-based organizations, American Indian Tribes, and ethnic minority communities. They reviewed historical information from previous pandemics, the best available scientific evidence, expert opinion, and projections on how a pandemic would impact our state in order to guide them in their decision-making. We feel confident that these recommendations were made with the best interests of protecting all sectors of our community.

We recognize that implementing these recommendations will have an impact on the daily activities and lives of Utahans. However, we also know that if we do not initiate appropriate preparedness activities now, we will suffer far greater illness and death, social disruption, and economic loss when a pandemic inevitably strikes Utah.

We are grateful for the opportunity to chair this important Taskforce. We believe it was a very valuable effort that has produced important recommendations. We and most members of the Taskforce stand ready to assist you in implementing these recommendations should you so wish.

The Taskforce recognized that the work to complete these recommendations will compete with other priorities and need substantial attention to assure their completion. We recommend that you ask Lieutenant Governor Herbert, who is already a leader in preparedness in Utah, to coordinate and assure the multi-agency and organization effort needed to accomplish these recommendations.

Sincerely,

David N. Sundwall, MD
Co-Chair

James O. Mason, MD, Dr.PH
Co-Chair

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Executive Summary

A pandemic of influenza is a worldwide outbreak caused by a new strain of the influenza virus. Influenza pandemics occur inevitably but at unpredictable intervals and with widely varying severity. Three influenza pandemics occurred during the 20th century, including the Spanish influenza of 1918 which claimed the lives of an estimated 1 million people in the United States and between 20 and 100 million people worldwide. We cannot predict when the next pandemic will occur, but an avian influenza virus (H5N1) has been circulating among birds and other animals in Asia, Europe, and Africa. It has caused severe human disease, but has not yet demonstrated the ability to spread effectively from person to person. Nevertheless, this virus has raised alarms among influenza and public health experts and prompted greater attention to this important issue.

An influenza pandemic would pose many of the same challenges as other disasters, such as high rates of illness and death, and severe stress on the health care system. It would also bring unique challenges that are distinct from other disasters. A pandemic would be a global event limiting the ability to share resources among jurisdictions; it would also have a prolonged impact, lasting 6-8 weeks in a given community and potentially for a year or more globally. A severe pandemic would pose extraordinary challenges for all of society, changing many aspects of people's lives. Preparing adequately for a pandemic will require state and local government agencies, businesses, faith-based and community organizations, and the people of Utah to work together to prepare.

The Governor's Taskforce for Pandemic Influenza Preparedness brought together leaders from throughout the Utah community, including elected officials, business leaders, physicians, nurses and other health care leaders, Tribal health directors, public health, education, judicial, and public safety officials, representatives of churches and other faith based organizations, and members of several ethnic communities. The Taskforce met six times between September 2006 and February 2007 to review the problem and challenges. In considering what needs to be done to prepare for a pandemic of influenza, the Taskforce considered and made recommendations regarding eight issues. Those issues and the most important recommendations are described here.

Effective and credible decision-making

An influenza pandemic will challenge both leaders who will need to make tough decisions under difficult circumstances and the willingness of communities to accept those decisions and act accordingly. Decision-making processes must be timely, effective, informed by science, transparent, and inclusive of a range of community values. Toward those ends, the Taskforce recommended that a Governor's Pandemic Advisory Committee be established, that local health departments prepare to include local stakeholders in decisions and that the legislature critically examine whether current state and local emergency powers are adequate to support an effective response.

Communications
Effective public communications are essential to empower the public to respond appropriately, protect themselves and care for each other. Effective communications among agencies and organizations will be essential to assure a coordinated and effective response. To help assure effective communications during a pandemic, the Taskforce defined important principles and values that need to underlie public communications and emphasized that the responsibilities of each agency/entity involved in pandemic response, as well as the command structure under which they will work must be defined in advance of a pandemic.

Health care surge capacity
A moderate or severe pandemic will severely stress the health care system's ability to provide care for those who need it. In addition, hospitals and health care providers will be exposed to substantial risk of illness, financial loss and legal liability for failing to provide needed care. To help address those challenges, the Taskforce recommended that the Governor's Pandemic Advisory Committee establish a mechanism to produce altered standards of care, that legislation be developed to provide protection from liability for health care providers who follow those altered standards during a pandemic, and that measures be identified to support health care providers and expand the capacity of the system to provide needed care.

Maintaining essential business and community services
A pandemic with high illness and worker absenteeism rates, associated fear, and travel restrictions will disrupt many businesses, agencies and organizations that society depends upon for essential services such as food, water, power, transportation, and medical supplies. To help prevent disruption to those essential services and minimize economic impact, the Taskforce recommended that the Division of Homeland Security conduct a needs assessment regarding readiness, and identify government actions to support business and community planning and preparedness efforts.

Support for vulnerable populations and essential responders
A pandemic's greatest effect will be borne by those who are most vulnerable. In addition, those we depend on to help respond to the pandemic will also be vulnerable to its effects on themselves and their families. Support for both groups will require advance planning and coordination among many agencies and voluntary organizations. The Taskforce recommended establishing an Assistance Coordination Center to help plan for and coordinate that response.

Purchase and use of a stockpile of antiviral medications
Antiviral medications could reduce the morbidity and mortality caused by a pandemic influenza virus, and reduce the stress on the health care system, but without advance stockpiling the available supply of those medications will be grossly inadequate for the need. The Taskforce strongly recommended using state funds to purchase an antiviral stockpile -- at least the full amount available with federal matching funds.

Use of a pandemic influenza vaccine
Although it is unlikely to be available early in a pandemic, a vaccine would be the most effective measure to protect people from a pandemic influenza virus. Once available, it will be critical to rapidly administer it according to carefully considered priorities. The Taskforce recommended that a statewide plan be developed and that the importance of the vaccine and of adhering to priorities for administration be communicated to the public.

Community mitigation measures to slow the spread of the virus
Especially in the absence of a vaccine, measures to slow the spread of the virus through the community (e.g., home isolation and quarantine, school closures, and mass gathering and public place closures) can potentially decrease morbidity and mortality and reduce the impact on health care, business, and other support services. The Taskforce recommended that based on appropriate scientific information, governments should act to implement appropriate measures to limit spread of the virus, and identified several steps to help communities plan to implement the measures effectively and to limit adverse effects of the measures.

This summary has highlighted several of the most important recommendations. However, the Taskforce conveyed that all of the recommendations were carefully considered and deserve attention. The full list of recommendations, complete with agency accountability and a recommended timeline, are provided in this document.

An important theme throughout the Taskforce discussions was the need to involve all parts and members of the Utah community in the implementation of these recommendations. Throughout this report and the recommendations, the word "community" should be interpreted broadly to include all Utahans, including members of ethnic minority groups, people of different faiths, American Indian Tribes, and non-English speaking people.

Taskforce Process

The Taskforce included 37 community leaders (see page 3-4) representing a wide spectrum of Utahans, including health care, business, faith-based organizations, public safety, and public health, as well as city, county and state elected officials, and representatives of ethnic minority communities and American Indian tribes to help us address the important challenge of a potential pandemic of influenza.

A Utah Pandemic Influenza Response Plan was released in November 2005 and provided a roadmap toward preparedness. In addition to issues that required work by public health agencies and their usual partners, the Plan identified six important and challenging issues that required broad community engagement to address. The Governor's Taskforce for Pandemic Influenza Preparedness was convened to help address those issues. In the course of their work, the Taskforce members identified two additional issues (communications and community mitigation). The eight issues reviewed by the Taskforce were:

- Establish an effective and credible mechanism for the difficult, life-and-death decisions that will need to be made during a pandemic;
- Assure effective communications, both with the public and among response partners;
- Assess the ability of the health care system to provide care for the many people who may become ill during a pandemic;
- Identify steps to assure that essential businesses, community services, and critical infrastructure can continue during a pandemic;
- Prepare to provide support and care for vulnerable individuals and families and for essential responders;
- Provide guidance on whether to purchase, and how to use, a state stockpile of antiviral medications;
- Provide guidance on the use of limited supplies of vaccine;
- Utilize community mitigation measures to reduce spread of a pandemic virus.

Dr. David N. Sundwall, Executive Director of the Utah Department of Health and Dr. James O. Mason, former Director of the Centers for Disease Control and Prevention served as co-chairs of this Taskforce. The Taskforce met six times between September 2006 and February 2007.

The Taskforce was provided with background information on influenza, influenza pandemics, and the current threat from avian influenza H5N1. For each issue, a background paper and candidate recommendations were prepared to brief the Taskforce on that issue and provide a starting point for discussions. The background papers and candidate recommendations were developed by workgroups coordinated by the Utah Department of Health's Pandemic Influenza Workgroup and included substantial input prior to presentation to the Taskforce.

After hearing the background information and candidate recommendations, the Taskforce held a facilitated discussion during which they were asked to accept the recommendations as written, modify them, or ask for additional background work. At the sixth meeting, the Taskforce reviewed and accepted the full set of revised recommendations and provided guidance for the final report.

A draft report was prepared by Utah Department of Health staff and reviewed by Taskforce members. Their comments were used to prepare this final report. The findings will be reported to Governor Jon M. Huntsman Jr.

Utah Department of Health Taskforce Staff

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Recommendations of the Taskforce

The Taskforce members strongly emphasized that all the recommendations contained in these pages represent important work that must be completed if Utah is to be prepared for an influenza pandemic. However, they also recognized that certain recommendations deserve the greatest attention.

Highest Priority Recommendations:

1. Establish a Governor's Pandemic Influenza Advisory Committee to guide ongoing preparedness efforts and decision-making during a pandemic.
2. Communications during a pandemic must be open, honest, timely, unified, and be designed to reach all Utahans.
3. Clearly define the responsibilities and incident command structure under which all agencies, organizations, and other entities involved in response to a pandemic will operate.
4. Assure that the health care system is prepared to respond to the needs of a pandemic by identifying ways to increase capacity, developing triage and altered care standards, preparing to protect health care workers and their families, and providing protection against legal and financial loss during a pandemic.
5. Conduct a needs assessment and identify ways to facilitate business and private sector pandemic planning to assure the provision of essential services and minimize the impact on business.
6. When indicated by appropriate scientific information and guided by community values, government leaders should act to minimize spread of disease by restricting mass gathering of people and closing public gathering places.

Complete Recommendations of Taskforce:

Timeline[1]	**Issue 1: Effective and Credible Decision Making During a Pandemic** A pandemic could pose extraordinary challenges requiring special processes for making decisions that are clearly defined, effective, inclusive, and transparent.	Responsible Entity[2]
By July 31, 2007	1. The Governor should immediately establish a permanent advisory committee that meets periodically and as needed in advance of a pandemic or similar public health emergency to advise the Executive Director of the Utah Department of Health and the Governor. This process should: A. Include a policy advisory group and one or more technical advisory groups; B. Focus on critical policy decisions; C. Include a strong emphasis on communicating the process and decisions to the public.	UDOH

Timeline	Issue 1: Decision Making (Continued)	Resp. Entity
By December 31, 2007	2. Local health departments and Tribal health directors should prepare to be the focus for health-related decisions and coordination within their jurisdictions, including preparing local boards of health, elected officials, and other stakeholders to participate in those decisions, in advance of a pandemic. Their actions should be consistent with and follow established state and federal guidelines and be coordinated with those of other jurisdictions.	LHD, Tribal Health Directors
By December 31, 2007	3. The legislature should strengthen and/or clarify existing legal authority to better support effective decision-making during a public health emergency. The following issues deserve consideration: A. Strengthen and expand the emergency powers available to the Governor and local officials for use during a public health emergency; B. Enable the Governor to set altered medical care standards based on an advisory group process and to provide liability protection to medical care providers who follow those altered standards when it isn't possible to adhere to usual standards; C. Clarify the responsibility for bearing the economic impact of public health measures to limit the spread of a pandemic or other similar infectious disease; D. Clarify the roles and interaction of law enforcement, public safety, and public health officials in determining and enforcing decisions during a public health emergency; E. Clarify the Governor's authority, under certain circumstances and upon recommendation of an advisory committee process, to supersede local authorities during a public health emergency.	UDOH with AG

Timeline[1]	**Issue 2: Communications** Issue: Communications will be critical in responding to an influenza pandemic. The goal of communications should be to empower the public to respond appropriately to a pandemic. This issue addressed both public information & risk communications and coordination & communications among the partner agencies and entities responding to the pandemic.	Responsible Entity[2]
By July 31, 2007 (plan)	**Public Information & Risk Communications:** 1. Public and risk communications prior to and during an influenza pandemic should be governed by principles	UDOH, LHD, All[3]

Timeline	Issue 2: Communications (Continued)	Resp. Entity
Ongoing Responsibility	and values that help to build trust between the public, the public health system, hospitals and health care providers, and the media including: A. Communications should be a coordinated effort between involved agencies. (Respiratory hygiene issues may affect the use of a Joint Information Center (JIC) during a pandemic.) B. Communications should be open, honest, and timely, describing the reasons for and the process used to make decisions, and should acknowledge uncertainty where it exists. C. Communications should be conducted with the goal of reaching all members of the community regardless of race, religion, ethnicity, language, or cultural background. Additional capacity is needed to fulfill this recommendation such as adequate numbers of trained interpreters, effective relationships with ethnic media outlets, and alternative communication methods for hard to reach populations. D. A plan must be in place and resources allocated to assure that regular and timely updates are provided to the public prior to and during a pandemic. E. Public information and risk communications should be designed to communicate clear expectations about services that will or will not be available during a pandemic (e.g., realistic expectations about medical care during a pandemic) and about what people can do themselves. F. Special efforts should be made to provide information to all members of the community, including the most vulnerable members, to help them take steps to increase their resiliency and reduce their vulnerability. Alternative communication tools should be developed to encourage communications that do not increase risk of transmission of influenza.	
By July 31, 2007 (plan); Ongoing Responsibility	2. Public information and risk communication are critical tools for an effective community response and should be considered as part of all critical operational decisions related to the response.	UDOH, LHD; All
By December 31, 2007	3. The media should be engaged in advance to establish shared goals and expectations for communications	UDOH, LHD

Timeline	Issue 2: Communications (Continued)	Resp. Entity
	during a pandemic. **Operational Communications and Coordination:**	
By December 31, 2007	4. Incident command structures, means of communication, and mechanisms for coordination among local, state and federal partner agencies, Tribal governments, and non-governmental organizations should be clearly defined and exercised in advance of a pandemic. Incident command, communications, and coordination mechanisms should be built upon existing systems, but need to consider the unique circumstances of a pandemic.	UDHS, LHD, All
By December 31, 2007	5. Public health agencies, health care providers and other response partners should exchange information about their plans, capabilities and expectations of partners prior to and during a pandemic.	UDHS, All
By December 31, 2007	6. Public health agencies should develop and implement means of communicating rapidly with all physicians and other health care providers in Utah. Communications systems should assure that unified messages, coordinated across local jurisdictions, are provided to providers statewide. Health care providers should be defined broadly to include all those involved in health care.	UDOH, LHD

Timeline[1]	**Issue 3: Adequacy of Health Care Surge Capacity for an Influenza Pandemic** A pandemic will severely stress the ability of our health care system to provide care for all those who need it. This stress will affect hospitals and health clinic employees, home health agencies, clinics and private physician groups and other medical facilities, as well as fire, EMS and other responding agencies. Many barriers to improving medical surge capacity exist; therefore, this must receive immediate and continuing attention at community, state and federal levels.	Responsible Entity
By July 31, 2008	1. Establish mechanisms to develop altered standards of care for use during a pandemic and to provide liability protection for health care providers and other responders who follow those altered standards of care. A. Utilize the Governor's Pandemic Advisory Committee recommended by this Taskforce to develop altered standards of care for use during a pandemic when usual care is not possible. B. Using a process inclusive of community representation, determine the principles by	UDOH

Timeline	Issue 3: Health Care Surge Capacity (Continued)	Resp. Entity
	which decisions for the rationing of care during a pandemic would be applied. C. Endorse the development of federal and state legislation that would protect health care facilities, public and private heath care system personnel, and emergency responders from legal action as a result of providing care during a pandemic according to the altered standards of care. Federal laws, including EMTALA, and HIPAA, must be addressed as well. D. Develop model emergency declarations to facilitate needed actions and decisions during a pandemic.	
By July 31, 2008	2. In partnership with the media, support the development of unified messages from hospitals, the Utah Department of Health, local health departments, and Tribal governments, informing the public that medical care during a pandemic event will be different than the care they receive today; including clear messages about who should and should not report to health care facilities during a pandemic.	UDOH, UHA, LHD, Tribes
By July 31, 2008	3. Develop a multi-cultural and multi-lingual educational process for the public about how influenza is spread and what they can do to protect themselves; explaining the importance of hand and respiratory hygiene and social distancing.	UDOH
By December 31, 2007 (Plan), Ongoing Responsibility	4. Encourage community support for our health care providers and emergency and essential responders so they can continue to care for their families while still coming to work. Support may include priority for prophylactic medication or vaccination for themselves and their families and assistance with procurement of essential supplies.	UDOH, LHD, All
By July 31, 2008	5. Steps to expand resources available to provide care should be thoroughly evaluated before standards are revised to a sufficiency of care model. The measures evaluated should include: A. Establish alternative care sites for when hospitals are full. B. Provide financial incentives to bring additional persons into the health care workforce (e.g., retired nurses or physicians). C. Review worker's compensation laws and their impact on workforce availability. D. Evaluate how financial incentives or disincentives would affect the provision of care	UDOH, UHA, UMA, LHD, Tribes, Indian Health Services

Timeline	Issue 3: Health Care Surge Capacity (Continued)	Resp. Entity
	during and after a pandemic. Review issues such as denial of payment because of inadequate documentation, use of out-of-panel providers, use of volunteer providers; use of retired medical personnel to provide care during a pandemic; establishment of alternative sites for care; and compensation and retention of office/administrative staff during a pandemic. E. Conduct an assessment of barriers to coming to work during a pandemic, such as need for childcare.	
By December 31, 2007	6. Recommend that healthcare facilities and systems purchase and stockpile essential supplies and train personnel in their use. Items to stockpile might include personal protective equipment (PPE), automatic resuscitators, N-95 respirators, cots and body bags. Health care systems should be supported financially to ensure planning and preparation is completed.	UDOH, UHA
By July 31, 2008, Ongoing Responsibility (Plan)	7. Support the use and cross-training of willing medical and non-medical volunteers to provide care outside of their area of expertise by providing training for those who agree to do so.	UDOH, LHD, UHA, UMA, Tribes/Indian Health Services
Ongoing	8. Support the rapid development of electronic health records to improve quality of care during a pandemic.	UDOH, UMA, UHA

Timeline[1]	**Issue 4: Support for Vulnerable Populations and Essential Responders** Many people in Utah currently receive social and health care assistance and may become more vulnerable during a pandemic. As hospitals become overwhelmed, individuals who would ordinarily obtain care elsewhere may be confined at home or in alternate care facilities. Some groups may be disproportionately affected by community mitigation measures. Caregivers and other responders may need support to maintain a high level of functioning during a pandemic. Support may include information, basic needs (e.g., food, childcare), financial assistance, mental health care, or medical care.	Responsible Entity
By December 31, 2007	1. Adopt the principle that during a pandemic, current models of care and support for Utah's current vulnerable populations will likely be compromised. Voluntary organizations and support service agencies should plan	UDHS, UDHuS, VOAD

Timeline	Issue 4: Vulnerable Populations & Essential Responders (Continued)	Resp. Entity
	for a surge in needed services to the extent feasible with realistic expectations and by setting priorities.	
By December 31, 2007	2. Endorse, support, and seek funding for the development of surge capacity service delivery models for Voluntary Organizations Active in Disaster (VOAD) based on a surge capacity/community impact matrix and coordinated by a multi-agency Taskforce.	UDHS, VOAD
By December 31, 2007	3. Endorse and support the establishment of an Assistance Coordination Center (ACC) with representatives from VOAD and other support agency liaisons involved in direct service to: A. Coordinate information and service delivery such as mobile feeding and bulk distribution routes. B. Coordinate the preparation of public information messages about support activities; and C. Establish a mechanism to determine eligibility requirements for accessing community care resources. The ACC should be integrated with and consistent with National Incident Management System (NIMS), Utah State and local emergency response plans, and with existing incident command systems.	UDHS, VOAD
By December 31, 2007, Ongoing Responsibility	4. Recommend that personal preparedness and self-reliance messages include the needs of vulnerable populations and those who will have difficulty receiving or acting on those messages. Utilize and expand the 211 system to provide unified messages to the public.	UDHS
By July 31, 2007	5. Recommend that the Lt. Governor endorse and oversee the coordination of government agency activities through a planning group or other mechanism to ensure efficient and effective use of resources.	UDOH with Governor's Office
By December 31, 2007	6. Use the Governor's Pandemic Advisory Committee recommended by the Taskforce to review plans for community mitigation measures (e.g., school closure, isolation or quarantine) to be used during a pandemic to assure that scientific evidence and ethical principles are followed.	UDOH

Timeline[1]	**Issue 5: Maintaining Essential Business and Community Services during an Influenza Pandemic** The economic impact of a pandemic can be devastating to all sectors of the community. An influenza pandemic with sustained, high employee absenteeism rates may disrupt business operations and the provision of essential community services such as police, fire, corrections, gas and electric utilities, water, food, transportation, financial services, telecommunications, sanitation and healthcare.	Responsible Entity
By December 31, 2007	1. The Division of Homeland Security should conduct a comprehensive needs assessment to determine the extent of government, Tribal and private sector pandemic preparedness and identify best practices in business and community preparedness.	UDHS
By December 31, 2007	2. The Division of Homeland Security, working cooperatively with the Private Sector Homeland Security Coordinating Council, the Department of Technology Services, Tribal governments, other state agencies and urban and rural local jurisdictions, should define "Essential Services" and identify public and private actions needed to ensure that those services are maintained and that workers are protected.	UDHS
By December 31, 2007	3. Encourage state, Tribal and local governments to collaborate, assist, and provide incentives for businesses to engage in pandemic preparedness planning and to disseminate best practices and available resources.	LHDs, UDWS, Tribal Governments
By December 31, 2007	4. The Department of Work Force Services and Division of Homeland Security should collaborate with local Chambers of Commerce and other business networks to facilitate the sharing of continuity of operations plans and pandemic preparedness best practices among businesses across Utah.	UDWS, UDHS
By July 31, 2008	5. The Department of Workforce Services should assess the financial impact on "essential service" industries and agencies and their ability to absorb the impact of a pandemic. Consideration must be given to potential for business/agency failures: A. Working with the Governor's Pandemic Advisory Committee recommended by this Taskforce, study the financial impact of mitigation measures, the impact of business closures and failures, and the need for government financial assistance to assure survival of "essential service" providers.	UDWS, OE, LC

Timeline	Issue 5: Maintaining Essential Businesses (Continued)	Resp. Entity
	B. Conduct a financial study of the impact of a pandemic on the health care system including health insurance. C. The Labor Commission should study and review worker's compensation laws in relation to a pandemic and draft any necessary legislation for consideration. D. The Office of Education should study and draft legislation for consideration that would allow a waiver for continued funding of schools should mass closures occur during a pandemic.	
By December 31, 2007	6. The legislature should develop an emergency preparedness and disaster relief financial plan and set aside funds, especially in time of surplus funds, to address the impact of a disaster and the continuation of essential services. Incentives in the form of tax credits for businesses and organizations engaging in preparedness activities should be considered.	UDWS, UDHS
By September 30, 2007	7. Publish a public health community mitigation plan and provide a mechanism for businesses and communities to publicly comment on the implications for their operations and communities.	UDOH

Timeline[1]	**Issue 6: Stockpiling, Management and Use of Antiviral Medications for an Influenza Pandemic** An influenza pandemic could cause widespread illness and death. Antiviral medications could prevent illness or reduce its severity for individuals and lessen the impact of the pandemic on health care providers. Treatment efficacy is uncertain and could be limited by development of resistance. The current supply is insufficient for the needs of a pandemic.	Responsible Entity
By December 31, 2007	1. State funds should be used to purchase antiviral medications in excess of those provided as part of the national stockpile using the 25% federal match. Consideration should be given to purchasing additional antiviral medications if they become available in the future.	UDOH
By December 31, 2007	2. UDOH should adopt the recommendations of the National Vaccine Advisory Committee (NVAC) as interim criteria for use of antiviral medications under the State antiviral use plan. This plan should apply to antiviral medications available in Utah through federal, state, or local stockpiles, including medications	UDOH

Timeline	Issue 6: Stockpiling, Management and Use of Antivirals (Continued)	Resp. Entity
	purchased under the federal contract using private or local funds. A. Revisions to these guidelines should be developed as needed and reviewed by the Governor's Pandemic Advisory Committee recommended by this Taskforce. B. Education of the general public and health care providers about the appropriate use and distribution of antiviral medications must occur in advance of as well as during a pandemic.	
By July 31, 2007 (Plan)	3. Antiviral medications in the State stockpile purchased using federal or state funds should be distributed for use by local health districts according to the State plan as follows: A. Sixty percent (60%) should be distributed according to the population of each district; B. Twenty percent (20%) should be distributed according to an appropriate measure of the hospital treatment capacity of each jurisdiction; and C. A reserve of 20% should be maintained by the Utah Department of Health to be distributed according to need, including helping to cover priority groups identified by needs assessments or for outbreak control. D. These percentages can be modified as the stockpile numbers change, with review by the Governor's Pandemic Advisory Committee previously recommended by this Taskforce.	UDOH
By December 31, 2007	4. Local jurisdictions and Tribal jurisdictions should be allowed and encouraged to purchase antiviral medications under the federal contract in excess of those purchased using State funds. Medications purchased in this way can be used to supplement, not substitute for, the portion of the State stockpile available to that jurisdiction following the recommendations for use and priority groups established under the State plan.	UDOH, LHDs
By December 31, 2007	5. Hospitals, health care providers, and other entities should be allowed to purchase antiviral medications under the federal contract, in excess of those purchased using State funds. Medications purchased in this way can be used to supplement medications available through the State stockpile for use by priority groups established under the State plan.	UDOH
By December 31, 2007	6. The UDOH must develop a State plan and guidelines for use of antiviral medications during a pandemic. UDOH,	UDOH, LHD

Timeline	Issue 6: Stockpiling, Management and Use of Antivirals (Continued)	Resp. Entity
	local health departments, and other entities that will be involved in stockpiling or use of stockpiled antiviral medications should develop an integrated plan for storage, security, management, distribution, dispensing, accountability of use, assessment of efficacy and adverse events associated with their use during a pandemic. That plan should be developed in collaboration with health care providers who would be involved in diagnosis and treatment of persons with influenza and should be reviewed by the Governor's Pandemic Advisory Committee recommended by this Taskforce.	

Timeline[1]	**Issue 7: Management and Use of Influenza Vaccine during a Pandemic** A vaccine against the pandemic influenza vaccine would be the most effective tool for limiting spread and preventing complications of an influenza pandemic, but such a vaccine will not be available for at least 4-6 months after the virus is identified and supplies will be insufficient for some time after that.	Responsible Entity
By December 31, 2007	1. UDOH should lead development of a statewide plan in collaboration with all entities that will be involved in vaccine management and use during a pandemic. That plan should: A. Address operational details including staffing, security (vaccine storage and distribution, and maintaining order, access and egress at vaccination sites), accountability for vaccine use, data collection and tracking, responsibility for stockpiling needed supplies, and agreements for distribution and administration sites. B. Establish mechanisms to assure that vaccine administration adheres to priority groups. C. Plan to administer vaccine in ways and at sites that can minimize influenza transmission if vaccine administration occurs during an influenza outbreak. D. Clarify whether unlicensed volunteers, retirees, and health care workers from other jurisdictions can administer influenza vaccine during a pandemic or similar emergency, assure that they will have liability protection, and clarify whether state, Tribal or local law authorizes mandatory vaccination to protect the public health.	UDOH, LHD

Timeline	Issue 7: Management & Use of Vaccine (Continued)	Resp. Entity
By December 31, 2007	2. UDOH should adopt the priority groups recommended by the Advisory Committee on Immunization Practices (ACIP) as interim priority groups in the Utah Pandemic Influenza Plan. A. The Governor's Pandemic Advisory Committee previously recommended by this Taskforce should be used to guide vaccine priorities during a pandemic. B. The Governor's Pandemic Advisory Committee, using a public health technical advisory committee, in collaboration with stakeholders, should establish specific definitions to implement use of those priority groups and prepare estimates of the numbers of people in each priority group in Utah**.**	UDOH
By July 31, 2008	3. The pandemic influenza communications plan should include specific plans and pre-developed messages to inform the public prior to and during a pandemic about the importance, safety, and effectiveness of pandemic influenza vaccine, and the need and rationale for vaccine priority groups. These plans and messages should be evaluated for ability to reach all target populations, including difficult-to-reach populations such as Tribal Governments, ethnic minority groups and non-English speaking people.	UDOH
By December 31, 2007	4. Hospitals, long term care providers, other health care providers, and other essential responders should be required to develop systems and policies to support provision and reporting of seasonal influenza vaccination rates so that those systems and policies are in place and have been tested prior to a pandemic. UAIC/UDOH Immunization Program and Joint Commission policies/rules can serve as models for those policies and systems.	UDOH
By December 31, 2007	5. Utilization of USIIS/EIMS (Utah Statewide Immunization Information System/Emergency Immunization Management System) and UNIS (Utah Notification and Information System) should be expanded as soon as feasible by making it a funding priority to assure that tested and implemented vaccine tracking and communications/notification systems are available when a pandemic occurs.	UDOH
By December 31, 2007	6. State or federal funding should be made available for vaccine to be used for mass clinic exercises.	UDOH

Timeline[1]	**Issue 8: Community Mitigation and Its Potential Consequences** Measures to reduce spread of a pandemic virus could potentially prevent illness and limit the impact of the pandemic, but could also have adverse effects. Substantial uncertainty exists about both the effectiveness of these measures and about the adverse effects they might cause	Responsible Entity
By September 31, 2007	1. In light of the recently released *Interim Pre-Pandemic Planning Guidelines: Community Strategy for Pandemic Influenza Mitigation in the United States*, the UDOH, in cooperation with local health departments and other community partners, should develop a community mitigation plan that is in harmony with federal guidelines to the extent feasible.	UDOH
By July 31, 2008	2. The State Office of Education, school districts, colleges/universities, individual schools, Tribal schools and other agencies/entities responsible for delivering education, in collaboration with public health authorities, should plan for measures that can make schools safer during a pandemic by reducing opportunities for transmission.	OE, UDOH, LHD
By July 31, 2008	3. The State Office of Education, school districts, colleges/universities, individual schools, Tribal schools and other agencies/entities responsible for delivering education, in collaboration with public health authorities, should plan and take action to support their ability to maintain the educational process during a prolonged school closure.	OE, School Districts, Universities & colleges, UDOH, LHD, Tribal Governments
By July 31, 2008	4. The Utah Department of Health, in collaboration with stakeholders, should examine ways to reduce transmission in childcare settings during a pandemic and also consider steps that would help prepare society for childcare facility closures that might be required during a pandemic.	UDOH
By September 30, 2007 (Plan), Ongoing Responsibility	5. When indicated by appropriate scientific and public health knowledge regarding the severity of a pandemic, government leaders should act to restrict the mass gathering of people in order to minimize the spread of disease.	UDOH, LHD
By December 31, 2007	6. State, Tribal and local governments should work proactively with faith and community-based organizations to develop alternative approaches to meeting the needs of the communities they serve before	UDOH, LHD, All

Timeline	Issue 8: Community Mitigation (Continued)	Resp. Entity
	and during a pandemic in order to minimize the spread of disease.	
By December 31, 2007	7. State, Tribal and local governments should work proactively with the business community to help align employment and business incentives with community mitigation measures.	UDWS

[1] Where the recommendation requires involvement or action by the Governor or legislature, the timeline sets a deadline to have preparatory work ready for the Governor or legislature and not a timeline for action by the legislature or Governor. For some recommendations that require substantial work and/or collaboration with many organizations, the date indicates a time by which work on the recommendations should have been started and demonstrated substantial progress but not necessarily completed.

[2] The responsible entity is defined here as the entity that is responsible to initiate and track progress toward implementation of that recommendation. For recommendations that require involvement by the Governor or Legislature, the responsible entity is that agency or other organization that will be responsible to do the background work and develop an actionable proposal or bill to the Governor or Legislature to consider.

AG – Office of Attorney General
LC – Labor Commission
LHD – Utah's 12 Local Health Departments
OE – Office of Education
UDHS – Utah Division of Homeland Security, Department of Public Safety
UDHuS – Utah Department of Human Services
UDOH – Utah Department of Health
UDWS – Utah Department of Workforce Services
UHA – Utah Hospital and Health Systems Association
UMA – Utah Medical Association
VOAD – Voluntary Organization(s) Active in Disasters
Tribes – Indian Tribal Leaders

[3] "All" means that this recommendation must be a priority for all agencies and organizations involved in pandemic influenza planning or response.

Background Papers Presented for the Taskforce

Governor's Taskforce for Pandemic Influenza Preparedness

Effective and Credible Decision-Making During a Pandemic

Background:

An influenza pandemic[1] will present special challenges to society and to elected officials charged with making decisions regarding how governments and communities respond to the pandemic. These challenges might include:

1. Uncertainty about what is happening and what to expect;
2. Inability to plan for every contingency;
3. Scarcity of resources;
4. Practical difficulties of implementing disease containment measures.

Response to a pandemic is likely to require decisions that substantially affect people's lives and that determine the impact the pandemic will have on individuals and families. These decisions might include:

1. Steps to limit spread of disease that infringe on individual liberties and economic or social well-being (e.g., school closures, event cancellations, travel restrictions, mass gathering restrictions, isolation, or quarantine)
2. Decisions about allocation of scarce resources
    - Who should receive vaccine or antiviral medications when the need for those resources exceeds the supply;
    - Who will be admitted to a hospital or critical care unit, or receive ventilator support for respiratory failure when the need and demand exceed the supply of those resources.

An influenza pandemic could substantially disrupt society for several months. An important determinant of the outcome will be community resilience. The extent to which people contribute to an organized community response can help to limit the damage and disruption caused by a pandemic. Previous experience and existing recommendations suggest that if people trust government and other sources of community leadership they will be more willing to cooperate with response plans and recommendations.

Evidence suggests that the process by which such decisions are made can affect how people respond to those decisions. Factors that might influence response include transparency of the process, the extent to which those decisions reflect community values, the perceived equity of decisions, and the way that they are communicated.

Objective:

To establish effective and credible decision-making mechanisms that are transparent, help to assure that important decisions are equitable and reflect community values, and operate efficiently enough to aid rather than impair response.

[1] Similar challenges might occur with a bioterrorism attack or other large, infections disease outbreak.

Planning assumptions:

Assumptions about a pandemic:

1. An influenza pandemic will cause simultaneous outbreaks across the United States limiting the ability to transfer assistance from one jurisdiction to another.
2. The influenza epidemic will last 1-2 months in a given community. During that time, absenteeism rates may be 25% or greater and the number of people requiring health care may exceed the capacity of the health care system requiring rationing of medical care resources.
3. Vaccine will initially be unavailable. Supplies of both vaccine (when available) and antiviral medications will be insufficient to meet demand requiring prioritization of use. Both vaccine and antiviral medications will probably be distributed under the control of the government.
4. As is true of most diseases, an influenza pandemic is likely to disproportionately affect vulnerable populations, such as the poor, uninsured, ethnic and racial minorities, and those with prior illness or disability.

Assumptions about decision-making during a pandemic:

1. Important decisions related to a pandemic should be made using a process that assures a consistent approach (rationale, criteria, etc.) across different jurisdictions in Utah and which is to the extent possible consistent with national guidelines such as those recommended by CDC.
2. Wherever possible, important decisions related to a pandemic, especially those that have statewide impact or that affect fundamental individual liberties should be made based on CDC or State level guidance and policies. Wherever possible, the guidance and decision-making processes should be based on state statutory authority.
3. To the extent possible, specific operational decisions should be made by the health authority or other appropriate government authority at the level that is closest to those affected by the decision.
4. Important decisions, such as those regarding fundamental rights or that involve allocation of scarce resources, should be made using a process that assures consideration of community values, and helps establish trust in the process by those who will be affected by the decisions.
5. The decision-making processes established for a pandemic should support and advise but not unnecessarily subvert or replace established health care, public health or emergency response decision making processes.

Concerns:

1. Utah statute does not provide strong emergency powers to the governor that can be called upon during a public health emergency.
2. In a public health emergency such as an influenza pandemic, clearly established statutory authority might be needed for actions such as:

A. Enforce cancellation of mass events that could contribute to disease spread;
B. Limit travel into or out of an area affected by a communicable disease if doing so could reasonably prevent its spread to other areas of the state;
C. Require facilities to be made available as emergency hospitals, quarantine facilities, or for shelter of persons not able to stay in their home due to disease in family members;
D. Establish guidelines for provision of medical care or delivery of other services when usual standards of care cannot be met, for example when the demand for hospitalization, intensive care unit treatment, use of antiviral medications, or provision of artificial (ventilator) respiratory support exceeds the capacity to provide such care.

Members of workgroup who contributed to this background paper:

Robert Rolfs, State Epidemiologist
Doug Springmeyer, Assistant Attorney General
Adi Gundlapalli, Adjunct Assistant Professor, U. of U. Infectious Disease School of Medicine
Sally Kershisnik, Nursing Director, Davis County Health Department
Joe Miner, Executive Director, Utah Valley Health Department
Paul Patrick, Bureau Director Emergency Medical Services

Governor's Taskforce for Pandemic Influenza Preparedness

Communications

Background:

Communications is a critical component of responding to any emergency or disaster. Critical information must be communicated among individual and organizational responders, with partners and stakeholders who depend on that response (operational and partner coordination and communications) and with the public (public information and risk communication). Nearly every analysis or review of response to a major disaster or incident has highlighted the importance of communications. An influenza pandemic will affect people all over Utah, the nation, and the world over a period of several months. An effective response will require coordinated efforts by all communities and by all organizations and individuals within those communities. Communications will be critical to assure:

- That the public receives, understands, and is able to take appropriate action based on messages designed to reduce personal risk;
- That individuals and organizations understand how to play an appropriate role in a coordinated and effective community response;
- Efficient use of limited resources, such as health care and support services for affected people;
- Consistent application of guidelines and policies across jurisdictions and organizations;
- That the public as well as response partners have realistic expectations regarding services and support that will be available during a pandemic.

This paper will discuss communications in two domains:

1. Public and risk communications – words, actions, and other messages that are responsive to the concerns and values of the target audience and that are intended to help people make more informed decisions about threats to their health and safety. Public and risk communications utilize these disciplines and techniques:
    A. Media relations
    B. Community relations
    C. Emergency alerting/communications systems
    D. Communications through intermediaries with special ability to reach target audiences (e.g., community organizations and businesses)
    E. Coordinating risk communications messages among partner organizations

2. Operational coordination and communications among agencies and other partner entities, including those traditionally recognized as disaster response partners[2] and others who would have critical responsibilities for providing essential services during an pandemic[3]. This includes these elements:
    A. Establishing clearly defined responsibilities and expectations among partners prior to occurrence of a pandemic
    B. Establishing mechanisms to inform partners of plans and of the current situation
    C. Mechanisms to coordinate activities prior to and during a pandemic
    D. Mechanisms to resolve conflicts

Communications needs and strategies will differ according to the phase of pandemic alert (see Utah Pandemic Response Plan). For purposes of this paper, we will focus on communication needs during two periods:

- Pandemic Alert Period (presence of novel virus capable of causing human infection but without widespread person-to-person transmission) – the current situation;
- Pandemic Period (increased and sustained transmission of a novel influenza virus in the general population).

Objectives:

1. Identify principals that should guide public/risk and operational/partner communications prior to and during a pandemic.
2. Identify critical steps that need to be taken now to assure effective public/risk and operational/partner communications prior to and during a pandemic.
3. Review current approaches to public/risk and operational/partner communications planning and recommend specific changes in approach or in resource allocation should that appear necessary.

Planning assumptions:

1. A pandemic will lead to intense media coverage and public interest in information. This interest will provide both opportunities and challenges to effective public and risk communications.
2. Application of risk communications principles can assist with effective communications prior to and during a pandemic. Assuring application of those principles during a time of crisis will require substantial preparation in advance of the crisis.

[2] state and local public health agencies, hospitals and health care providers, local and state public safety and law enforcement agencies, Red Cross and other Voluntary Organizations Active in Disasters (VOAD), National Guard and military

[3] Businesses and agencies providing essential services, such as water, gas, electricity, telecommunications, and food and other essential supplies.

3. Issues about a pandemic, including emergence of a new disease, uncertainty about the course it will take, and perception of risk, will create a heightened sense of alarm in audiences receiving messages.

Current activities/progress report:

The Pandemic Influenza Workgroup has worked on several aspects of this issue, including:

1. State/Local public health and health care coordination plan (draft form);
2. Development of messages for use during pandemic alert period;
   A. See www.pandemicflu.utah.gov
3. Translation of pandemic alert period messages into several languages (in progress);
4. Development of public information/risk communication plan (draft).

Other issues being addressed by the Pandemic Influenza Workgroup or Utah Department of Health staff include:

1. Operational communications and notification plan;
2. Establishing a contract for a pandemic alert period paid media and outreach campaign;
3. Planning for and participation in pandemic related drills and exercises.

Concerns:

1. Communications staff and resources which currently perform regular non-emergency duties would quickly be overwhelmed by the volume of media and public inquiries during a pandemic.

2. Balancing the need for state-level decisions and guidance required to achieve consistent messages and actions across jurisdictions with the need for local flexibility to respond to the specific needs of each community will be challenging.

Members of workgroup who contributed to this background paper:

Robert Rolfs, State Epidemiologist
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Governor's Taskforce for Pandemic Influenza Preparedness

Adequacy of Health Care Medical Surge Capacity for Pandemic Influenza

Background:

Utah's current healthcare situation:

The Utah Hospital Association (UHA) performed a hospital survey in the spring of 2006 focusing on current available resources. The results of the survey revealed the state has 4,915 licensed beds. However, only 3,949 of those beds are currently staffed. This is due to a chronic shortage of qualified physicians, nurses, pharmacists and respiratory therapists available to staff those beds. Many of the hospitals in our state run at 90% capacity or higher on a daily basis. Emergency Departments are particularly stressed; not just in Utah but all over the United States. The Institute of Medicine's Committee on the Future of Emergency Care in the United States Health System was convened in 2003 to examine the state of emergency care in the U.S., to create a vision for the future of emergency care, including trauma care, and to make recommendations to help the nation achieve that vision. Their findings were published in June 2006 and revealed that demand for emergency care has been growing fast; emergency department visits grew by 26 percent between 1993 and 2003 but over the same period, the number of emergency departments declined by 425 and the number of staffed hospital beds declined by 198,000. Please see the supporting document for projected numbers of persons per county that would be affected during a pandemic event.

Pandemic Planning assumptions:

- The clinical disease attack rate will likely be 30% or higher in the overall population during the pandemic.
- Of those who become ill with influenza, 50% will seek outpatient medical care.
- In a severe pandemic, absenteeism attributable to illness, the need to care for ill family members and fear of infection may reach 40% in health care workers during the peak weeks of a community outbreak.
- In an affected community, a pandemic outbreak will last about 6 to 8 weeks.
- Multiple waves of illness could occur.
- There is no vaccine and it will take approximately 6 months to develop one after the pandemic has started.

Objectives:

1. Develop a realistic understanding of the capacity of the health care system to respond to a pandemic and identify measures and options that can be taken to improve that capacity.

2. Identify measures that can be taken to improve public awareness and adherence to health messages in order to use the system optimally.

3. Identify measures that can be taken to protect health care workers and to preserve the ability of the health care system to function during and after a pandemic.

4. Identify measures to protect hospitals and health care providers from the consequences of a pandemic, including liability from providing care when it is not possible to meet usual standards of care.

5. Identify decisions that should be referred to the pandemic decision-making process recommended previously by the Taskforce.

Concerns and Critical Issues:
The following is a list of critical issues that will impact the medical health care system during a pandemic influenza. Any subsequent disasters, whether natural or man made will also have the same effect.

(1) Primary Critical Issue:
There are not enough hospital beds, hospital staff, medical equipment or medical supplies to deliver the same level of care we are able to provide today to our patients to the numbers of persons who would seek care during a pandemic.

The number one rule of providing medical care during a disaster is to do the greatest good for the greatest number. ***However, currently there is no legal protection for hospitals or health care providers who may be forced to make decisions about rationing care.*** Many health care providers in the state of Utah are willing to put their patients and the community first by trying to do the best they can for the most they can but are worried about potential legal retribution after the pandemic is over. Health care providers are concerned that if the severity of the pandemic is like that of the 1918, they would not be able to meet the "standard of care" which is expected but would then be penalized.

Pre-planning is the most effective way to avoid "last minute decisions" that could have lasting consequences and impact response effectiveness. Developing a key group of practicing primary care and specialty physicians, including ethicists, in our community to develop a "sufficiency of care model" that would be recommended to the Governor for use when circumstances prevented meeting usual standards of care would standardize care throughout the state and give healthcare systems the ability to focus on patient care. The sufficiency of care model would include: cessation of all non-essential services during the peak weeks of a pandemic, placement of patients in non traditional areas within the hospital or alternate care facilities outside the hospital, pre-established screening tools and triage criteria including guidelines for ventilator triage that would be used by all healthcare systems in an effort to standardize care throughout the state.

Currently the State government does not have the power or emergency declaration statutes to be effective during a disaster. ***There is not a committee or group of specialized healthcare providers that advise the state on patient care guidelines or recommendations during a disaster.*** Healthcare providers in separate hospitals do not currently coordinate patient care. In a pandemic event, this could cause distrust and

anger within the community or cause one hospital to become completely overwhelmed if different levels of care are being given at different hospitals.

(2) Supporting Critical Issues:
In addition to the primary critical issue there are additional concerns that impede hospitals from moving forward with effective planning.

A. Public Perception of Health Care Capabilities
B. Community Support for Health Care Systems
C. Lack of funding
D. Use of volunteers

A. Public Perception of Health Care Capabilities:
Advances in modern medicine have saved countless lives. In hospitals today, everything possible is being done for every patient. The public has accepted this as the standard of care and expects this type of care every time they come to the hospital. ***In the event of an influenza pandemic, patient care will be different especially during the peak weeks.*** Additionally, there is a large concern that people will rush to hospitals, urgent care facilities and primary care physicians just to make sure they are "okay". If this occurs it will paralyze our health care delivery system and essentially expose all of those who are not sick to those who are.

To help alleviate the stress on the health care system, the development of unified messages for the public from the hospitals and endorsed by the Utah Department of Health would significantly decrease the surge of patients into the health care system. This information can be communicated to the public at the onset of a pandemic. These messages would include the following information:

I. Care given at hospitals during a pandemic event will be different than the care they receive today.
II. Who should and should not report to health care facilities during a pandemic.
III. Continued education for the public on how the flu is spread and what they can do to protect themselves; explain the importance of hand and respiratory hygiene and the process of social distancing.

B. Community Support for Health Care Systems:
Community support for our health care providers would enable them to care for their families while still coming to work to provide patient care. Support may include priority for prophylactic medication and or vaccination for themselves as well as their families and assistance with procurement of essential supplies.

C. Lack of Funding:
Hospitals that have increased their medical equipment and supplies have done so at their own cost. Most hospitals in Utah do not have a full time person devoted to disaster planning due to lack of funding for this position. Currently, the UHA has identified three critical areas where lack of funding has a direct affect on the **inability to meet patient demand with current resources:**

I. **Beds** – The State of Utah regulations allow for an automatic 20% increase in licensed bed capacity in an emergency situation such as pandemic influenza, the critical issue remains finding staff to care for the patients placed in those beds. An additional consideration is the physical location for those beds. Placement of patients in non-traditional areas within the hospital or in alternate care facilities not attached to the hospitals, utilizing volunteers to provide staffing for these additional beds, would require legislative protection and funding for training. The use of screening areas and readily available screening tools used to quickly evaluate patients seeking care; sending the least sick home and those with the highest probability of survival to any facility with an open bed would require funding for training, equipment and supplies.

II. **Staffing** – Most hospitals and health clinics are working at or near staffing capacity on a daily basis, some turning away patients because they don't have the staff to take care of them. ***The lack of qualified health care professionals has made it difficult to find additional staffing for day to day operations, let alone during a pandemic event.*** Additionally, health care providers will have the highest risk for contracting influenza. Many are fearful that they will take influenza home to their family, for this reason there is the potential for decrease in available workforce to be even higher than in the non-healthcare workplace. Retaining support staff such as house keeping is also a major concern. Some support services may be even more unlikely to report to work than physicians, nurses, pharmacists, and respiratory therapists.

III. **Medical Equipment and Supplies** – Currently, most facilities use a "just-in-time" inventory and have no protocols in place to stockpile supplies such as: large numbers of N-95 respirators, masks, gowns and gloves that would be needed during a pandemic. Utah hospitals who are trying to stockpile supplies are having a difficult time purchasing these supplies (N-95 respirators and masks) due to high volume orders being placed all over the country. Purchase of larger equipment such as ventilators is questionable because of cost ($27,000 per ventilator) and lack of highly trained staff required to care for a patient on a ventilator.

D. Use of Volunteers:

The importance of developing a systematic approach in the healthcare system to obtaining an identified and credentialed list of medical volunteers willing to offer their services in the event of a large-scale disaster is critical to provide for the increase in patient care. This would include all categories of clinical personnel and could be based on existing models. It would provide unified training for those willing to volunteer in order to increase their comfort level when providing care outside their area of expertise (i.e. podiatrist, dermatologists, retired physicians, nurses and other skilled medical staff).

Closing:
During large-scale events, it has been shown that hospital and health clinic staff is more likely to become victims themselves, stay home with their families or leave the area to a location that they perceive as safe. Protecting the infrastructure of each particular health care facility plays an important role on the sustainability of the health care system.

Day to day operations of a hospital require that they plan for more than just the influenza pandemic. Other diseases of concern that have the potential to overwhelm the health care system include but aren't limited to: chemical contamination, measles, pneumonic plague, SARS, smallpox, tuberculosis, viral hemorrhagic fevers and other as yet unknown newly emerging infectious diseases. This is in addition to the trauma care already being given on a daily basis.

The importance of pre-planning for any event cannot be overstated. Many diseases and maladies threaten human life. Our preparations therefore should not be aimed at the avian influenza virus alone. We should prepare for pandemics in ways that are politically sustainable and remain useful even if a pandemic does not occur.

Supporting Documents:
The following are the supporting documents referenced in this paper:

(1) Sufficiency of care definition: doing the greatest good for the greatest number with the available resources at that time. For example, in two of the larger hospitals in the state, nurse to patient ratios in acute patient care areas is 1:3 or 4, 1:5 at the most. In Intensive Care Units it is 1:1 or 2. During a Pandemic nurses may need to be asked to care for 5 times more than that). Please see the supporting document for the journal article from the Society for Academic Emergency Medicine titled "Concept of Operations for Triage of Mechanical Ventilation in an Epidemic" for complete explanation of the process recommended for establishing altered standards of care and providing protection to providers following those altered standards of care. Important aspects of that process include: 1) Establishing an advisory group that is technically competent to produce altered standards of care, including for example, triage criteria for ventilator respiratory support when the demand exceeds the supply. Such an advisory group should include experts in clinical medicine as well as experts in ethical decision making. 2) Establishing a second policy advisory group is recommended that would include medical expertise, but also be broadly representative of the community and which would evaluate the technical recommendations to assure they are equitable and compatible with community values.

STATE OF UTAH POPULATION: 2,528,928

Illness	758,678	
Outpatient Medical Care	379,339	
	Moderate	**Severe**
Hospitalization	7,283	83,455
ICU	1,092	12,518
Ventilator	546	6,259
Deaths	1,745	15,932

BREAKDOWN BY HEALTH DISTRICTS (INCLUDING COUNTIES)

Salt Lake County population: 970,748

Illness	291,224	
Outpatient Medical Care	145,612	
	Moderate	**Severe**
Hospitalization	2,796	32,035
ICU	419	4,805
Ventilator	210	2,403
Deaths	670	6,116

Davis County population: 276,374

Illness	82,912	
Outpatient Medical Care	41,456	
	Moderate	**Severe**
Hospitalization	796	9,120
ICU	119	1,368
Ventilator	62	684
Deaths	191	1,741

Utah County population: 453,977

Illness	136,193	
Outpatient Medical Care	68,097	
	Moderate	**Severe**
Hospitalization	1,307	14,981
ICU	196	2,247
Ventilator	98	1,124
Deaths	313	2,860

Tooele County population: 51,835

Illness	15,551	
Outpatient Medical Care	7,775	
	Moderate	**Severe**
Hospitalization	149	1,711
ICU	22	257
Ventilator	11	128
Deaths	36	327

Bear River (Box Elder, Cache, Rich Counties) population: 149,705

Illness	44,912	
Outpatient Medical Care	22,456	
	Moderate	**Severe**
Hospitalization	431	4,940
ICU	65	741
Ventilator	32	371
Deaths	103	943

Summit County population: 36,417

Illness	10,925	
Outpatient Medical Care	5,463	
	Moderate	**Severe**
Hospitalization	105	1,202
ICU	16	180
Ventilator	8	90
Deaths	25	229

Weber-Morgan Counties population: 221,232

Illness	66,370	
Outpatient Medical Care	33,185	
	Moderate	**Severe**
Hospitalization	637	7,301
ICU	96	1,095
Ventilator	48	548
Deaths	153	1,394

Wasatch County population: 20,138

Illness	6,041	
Outpatient Medical Care	3,021	
	Moderate	**Severe**
Hospitalization	58	665
ICU	9	100
Ventilator	4	50
Deaths	14	127

Central (Juab, Millard, Piute, Sanpete, Sevier, Wayne Counties) population: 71,046

Illness	21,314	
Outpatient Medical Care	10,657	
	Moderate	**Severe**
Hospitalization	205	2,345
ICU	31	352
Ventilator	15	176
Deaths	49	448

Southeast (Carbon, Emery, Grand, San Juan Counties) population: 52,832

Illness	15,850	
Outpatient Medical Care	7,9255	
	Moderate	**Severe**
Hospitalization	431	4,940
ICU	65	741
Ventilator	32	371
Deaths	103	943

Southwest (Garfield, Iron, Kane, Washington, Beaver Counties) population: 182,295

Illness	54,689	
Outpatient Medical Care	27,344	
	Moderate	**Severe**
Hospitalization	525	6,016
ICU	79	902
Ventilator	39	451
Deaths	126	1,148

Tri-County (Daggett, Duchesne, Uintah Counties) population: 42,327

Illness	12,698	
Outpatient Medical Care	6,349	
	Moderate	**Severe**
Hospitalization	122	1,397
ICU	18	210
Ventilator	9	105
Deaths	29	267

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Document approved by Utah Disaster Advisory Council (UDAC) which has representatives from all the Hospital Systems in the State

Governor's Taskforce for Pandemic Influenza Preparedness
Support for Vulnerable Populations and Essential Responders

Background:
During a pandemic, individuals may be confined at home to prevent or limit the spread of disease. Others, often referred to as essential responders, will be asked to provide care or services in extraordinary ways. Additionally, there are many in our communities relying on voluntary based organizations for assistance and those voluntary organizations will be quickly overwhelmed with requests for help. All of these groups may need support to stay in their homes or to maintain high levels of functioning.

The impact and need for support would be greatest for two major groups of society-members of the community who are more vulnerable due to preexisting illness, poverty, social or physical isolation, or lack of other means of support and those who have to respond to the crisis to ensure they are protected, informed and able to act.

UDOH modeling for a moderate and severe outbreaks indicates that between 7,283 and 83,455 individuals will be ill and in need of support at any given time. Some of these individuals will be isolated or quarantined to halt the spread of disease, others will be ill. Current estimates point to Utah being short 1,150 to 54,469 hospital beds, depending on the severity of the pandemic. Considering surge capacity, current standards of care and staffing models, between 3,624 and 56, 955 individuals will not have access to a hospital bed and will require home or community based care

Currently, the voluntary and governmental service providers who care for Utah's most vulnerable populations, including the homeless, the aged, people with limited income or access to health care, are already operating at or above capacity. The additional demand for assistance will quickly overwhelm this capacity. Yet the needs by those who are traditionally served through these agencies will still need assistance and their ongoing needs cannot be ignored.

A 2004 report from the American Hospital Association estimates there are approximately 33,400 health care providers and support personnel statewide. This includes physicians, registered nurses, dentists and licensed practical nurses working full and part-time. The work of these health care providers and support personnel, essential responders, will be demanding and their need for priority services will be essential in keeping the health care system functioning.

Objectives:
1. Determine the responsibility of society and government to care for vulnerable populations and critical responders when resources are overwhelmed.
2. Identify measures that can be taken to improve capability to provide such support for mass care and human needs.
3. Develop a system to assure that decisions about confinement or restricted movement are ethical and based on science.

4. Identify key issues that should be returned to a decision-making body because of multi-system issues or impacts that are separate from usual, public health operational decision-making processes.

I. Planning Assumptions

1. Voluntary Organizations Active in Disasters (VOAD's) and other supportive resources will be overwhelmed.
2. Current human service providers will be required to provide services to those who have ongoing needs and to those who have newly identified needs for periods of time outside the traditional disaster response window.
3. Measures to limit spread of disease should expand beyond traditional respiratory hygiene practices to include non-returnable methods of service delivery, such as drop-and-go meals in disposable containers or MREs
4. Mass care practices, as traditionally defined by mass shelters, feeding stations and distribution sites, will not be followed to limit the spread of disease.
5. Government has a history, particularly in times of disaster, of not serving vulnerable populations or emphasizing the need for appropriate planning measures with this group.

Concerns:

1. Community support systems will be duplicated and gaps will be left unidentified.
2. Those who presently require assistance in the current human care system may not be served because of the increasing burden of assistance to newly identified groups.
3. Organizations who depend on donations to continue operations, such as the Utah Food Bank or the American Red Cross Blood Blank, will have limited resources because the donation process will be interrupted.
4. Certain groups may be singled out for isolation/quarantine because of a health or socio-economic disparity and not because of disease incidence.

Current Activities/Progress Report:

Utah Voluntary Organizations Active in Disasters (VOAD) is currently undertaking an assessment of each organizations capacity to respond during a pandemic.

The 211 Info Bank is coordinating the development of a directory of disaster/mass care service providers with support from Utah VOAD.

Nationally, the American Red Cross is defining its responsibilities and creating pandemic response performance standards for local chapters.

The Coalition for Utah's Future has held several disaster preparedness tabletop exercises, including a pandemic influenza scenario.

The Lt Governor's Be Ready Utah initiative is asking all Utahn's to be proactive and prepared. The addition of respiratory hygiene instructions and 'medicine cabinet readiness' is currently being negotiated for inclusion.

Suggested Approaches:

1. Adopt the principle that during a pandemic, current models of care and support for Utah's current vulnerable populations should continue without interruption. Voluntary agencies should plan for a surge in needed services, not a diversion of services.
2. Endorse and support the development of service delivery models for Voluntary Organizations Active in Disaster (VOAD's) based on a surge capacity/community impact matrix and coordinated by a multi-agency Taskforce that comprises at least the following:
    A. VOAD's, including the American Red Cross, Southern Baptist Disaster Relief, Seventh Day Adventist Church, and the LDS Church
    B. Community Service Council
    C. National Guard
3. Endorse and support the establishment of an Assistance Coordination Center (ACC) with representatives from VOAD and other support agency liaisons involved in direct service to coordinate-
    A. Information and service delivery such as mobile feeding and bulk distribution routes,
    B. Reports to government Emergency Operation Centers, and,
    C. The preparation of messages for public information about community support activities.
    D. Establish a decision-making mechanism to determine eligibility requirements for accessing community care resources.
4. Recommend the expansion of personal preparedness and self-reliance messages to include the needs of vulnerable populations or those who will have difficulty receiving or acting on preparedness/response messages.
5. Endorse the coordination of government agency activities through a planning group or other mechanism to ensure efficient and effective use of resources.

Establish a review mechanism or technical advisory group to monitor the impact of isolation and/or quarantine on populations to assure that scientific evidence and ethical principles are followed.

Members of the Workgroup:
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Governor's Taskforce for Pandemic Influenza Preparedness

Maintaining Essential Business and Community Services During a Pandemic Event

Background:

An influenza pandemic may last for 6-8 weeks in a given community, will occur in waves and last a year or more globally. Employee absenteeism rates may vary with the severity of the pandemic. The Centers for Disease Control and Prevention (CDC) project that absenteeism during a severe pandemic may reach 40% due to personal illness, the need to care for family members, and, fear. This is magnified by recent public polling data that suggests nearly 40% of the workforce will not report to work in the event of a pandemic because of fears for personal and family safety. These expected absenteeism rates, as well as possible interruptions in transportation and trade, will disrupt business operations and the provision of essential services. The effect of staffing reductions will be the inability to deliver expected services. The closure of certain businesses, schools and government services may be required in the interest of controlling the spread of illness. The financial impact of these actions is difficult to predict, but can be substantial (Meltzer, IMF, Osterholm).

Most people assume that their job or task is essential. While most tasks are necessary to every day operations, in an emergency the standard of 'essential' shifts. This does not lessen the value of an employee's position, but requires a change in tasks to meet the unusual circumstances faced in an emergency. Realistic steps must be taken to identify those tasks that must continue in order to deliver needed community services.

A pandemic will have a financial impact on both the private and public sector. Prolonged travel restrictions, business closures, and staffing reductions will result in a loss of revenue to the private sector, individuals, and governments. Two areas of concern, public health and business, must be considered and carefully balanced.

Public Health Considerations: The health of the population must be the primary concern. However, that concern should be considered with practical consideration of the overall, long-term economic impact of public health policies. There must be an effort to keep the impact of those policies from irreversibly damaging economic interests of the community as a whole. Additionally, the healthcare infrastructure will shoulder a large portion of the financial burden produced from a pandemic. Financial losses to our healthcare facilities could threaten failure of parts or all of the system.

Public and Private Business Considerations: A break down in cash flow in any sector impacts the entire economy of a community. If a business falters, the ripple effect is the decrease or loss of spending by its employees. This in turn impacts other business that relied on this source of revenue. Additionally, the decrease in economic activity reduces

the amount of revenue to governments typically collected through sales, business, and personal income taxes.

Employees may be encouraged to come to work if they believe that they are relatively safe and that their families are being taken care of.

Objectives:

1. Identify measures that can be taken to identify essential services (public and private) and encourage/support those responsible for planning to minimize the potential for disruption.
2. Identify measures that can be taken to encourage/support planning efforts by businesses to minimize the potential for disruption and negative economic impact.
3. Assure that decisions about containment and other restrictions consider the implications for essential services and business continuity.
4. Identify the responsibility of society and government to protect individuals asked to provide essential services during a pandemic and steps that can be taken to provide that protection.
5. Recommend what decisions, separate from usual public health operational decisions, should be referred to a Governor's advisory process on pandemic preparedness (previously recommended by Taskforce).

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Pandemic Planning Assumptions:

1. Schools, churches, mass gatherings, and businesses hosting large numbers of people may be requested or ordered to close to contain the spread of disease.
2. Travel restrictions, including inter-state commerce, may be implemented to limit spread of the infection.
3. Concerned workers will not report to work and an estimated 20 – 40% percent of the workforce will be out due to illness, care for dependents, or fear.
4. Essential services and infrastructure will be overtaxed, understaffed, and could even be interrupted.
5. Disruption of delivery of essential services during a pandemic is likely to disproportionately affect vulnerable populations, such as the poor, uninsured, ethnic and racial minorities, and those with disabilities.
6. A shortage of vaccines and insufficient availability of anti-viral medications will be inevitable.

Concerns:

1. Reduced staffing will affect the operations of all businesses and services and public expectations will be difficult to meet.
2. The identification of Essential Services will be too broad or too narrow to fully anticipate the effects of an influenza pandemic.
3. Businesses and government agencies will not have effective plans in place to minimize the impact of financial loss.

4. Employers will not devote sufficient attention, before a pandemic, to educating employees about pandemic influenza and encouraging personal preparedness activities for their employees, missing that opportunity to reduce employee fears and concerns.
5. Employers will not plan in advance to protect employees, including the purchase of personal protective equipment and may be over dependent on government systems for this equipment.

Current Activities in Business Continuity Planning:

The present state of continuity planning across the spectrum of businesses and government agencies is unknown. There is concern that current efforts in the public and private sectors are not linked or coordinated and do not address issues unique to a pandemic influenza, including absenteeism, employee protection and business closure. A common obstacle to the development of plans is the reluctance to differentiate non-essential services and operations that can be postponed or delayed during a pandemic from those essential services that must be continued to sustain the community and minimize societal disruption. The tendency of individuals to ignore the unpleasant task of considering the harsh realities of an emergency is another roadblock to preparation efforts.

Suggested Approaches:

1 Ask the Division of Homeland Security conduct a comprehensive **needs assessment** to:
- Determine the extent of government and private sector pandemic preparedness.
- Identify barriers to preparedness, best practices, and effective modes of communications with different sectors of the community.
- Assess the need for incentives to promote preparedness, and willingness to participate in preparedness exercises.

2 Assign the Division of Homeland Security and the Homeland Security Coordinating Council, the Division of Technology Services, and other state agencies to collaborate with local jurisdictions to **define** what "Essential Services" are and identify government actions needed to assist in ensuring services are maintained and workers are protected.
- Personnel who deliver emergency essential services should be identified and considered for priority receipt of vaccination and other prevention measures.

3 Ask State and local governments to be more proactive in **collaboration, communication, and assistance** to local agencies and businesses engaged in pandemic preparedness planning by:
- Build on the knowledge and successes of ongoing efforts at the community level such as "Be Ready Utah", "Ready Your Business", and the Coalition for Utah's Future.

- Assign the Departments of Workforce Services and Homeland Security to collaborate with local Chambers of Commerce and other business networks to establish a mechanism that facilitates the sharing of continuity of operations plans and pandemic preparedness best practices among businesses across Utah.
- Conduct tabletop exercises that clarify expectations and interrelationships between private/public sectors (expectations for stockpiling of equipment, supplies, PPE, etc.)
- Assist with or provide employee education and training on emergency preparedness and pandemic influenza, specifically.

4 Engage the Department of Workforce Services to assess the financial impact on "essential service" industries/agencies and their ability to absorb the impact of a pandemic. Consideration must be given to **potential for business/agency failures:**

- Use the decision-making process recommended by the Taskforce previously to study the financial impact of containment and restrictions measures, the impact of potential business closures and failures, and the need for government financial assistance to assure survival of "essential services".
- The Labor Commission should study and review worker's compensation laws in relationship to a pandemic.
- The Office of Education should study and draft legislation for consideration that would allow a waiver for continued funding of schools should mass closures occur during a pandemic.
- The Insurance Commission or other appropriate group should identify ways to ensure the flow of funding to the healthcare community;
    - Consider legislative action to compel insurance companies to continue benefits coverage during a pandemic/emergency.
    - Plan to subsidize the healthcare industry from state disaster funds.

5 Publish a public health containment/mitigation plan and provide a mechanism for businesses and communities to publicly comment on the implications for their operations and communities.

- Personnel who deliver emergency essential services should be identified and considered for priority receipt of vaccination and other prevention measures.

Conclusion:

The economic impact of a pandemic may be devastating to all sectors of the community. History demonstrates that small businesses that have to close their doors for longer than three weeks will not reopen. Strong community-wide partnerships and a coordinated approach to the identification of essential services, sustainability planning, and mitigation actions are needed to assure that community services will continue during a pandemic and businesses will survive and recover.

Business must be encouraged to prepare to ensure their survival, and provided with guidance and the tools to do so. Businesses and governments need to be encouraged to help their employees become more prepared. A small financial investment may make the difference between business failure and emerging from an event with little to no impact. Finally, the most important link in the chain of economic survival is personal preparedness. We must encourage a level of personal reliance among our citizens to help stave off infrastructure overload and economic collapse.

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Governor's Taskforce for Pandemic Influenza Preparedness

Stockpiling and Use of Antiviral Medications for an Influenza Pandemic

Background:

A pandemic of influenza would be a worldwide outbreak caused by a novel influenza virus to which humans have limited or no immunity. The severity of illness caused by past pandemic viruses has varied, but such a virus could cause widespread, serious morbidity and mortality. It is not likely that a vaccine would be available during at least the early stages of a pandemic.

Currently, two classes of antiviral medications are available that have some effectiveness for treating influenza or for use as prophylaxis to prevent illness among those exposed to influenza. These two classes are adamantanes (rimantadine, amantadine) and neuraminidase inhibitors (oseltamivir, zanamivir).

Adamantane resistance can appear quickly and was widespread among human influenza A viruses detected during the 2005-6 season. Resistance has been present in many avian influenza H5N1 viruses that have been affecting humans. Resistance to oseltamivir emerges more slowly, but has appeared and been associated with treatment failure in disease caused by H5N1. Zanamivir resistance has not been observed in H5N1 viruses at this time.

Antiviral medications have several potential uses during a pandemic. They could limit severe illness and death in persons with influenza, potentially reduce demand for scarce medical care resources (e.g., ICU beds, ventilators), speed return of individuals from illness to work/school, and help protect persons with critical societal roles (e.g., medical care, public safety, and critical public health personnel) from illness.

Currently, the worldwide supply of antiviral medications is limited. Unless medications are stockpiled in advance of a pandemic, antiviral medications will not be available in sufficient amounts to meet the needs of a pandemic. To assure optimal societal benefit from antiviral medications, plans are needed to assure they are used where they can be most beneficial.

The benefit of antiviral medications against a particular pandemic-causing virus is difficult to predict. However in studies of their use with seasonal influenza, antiviral medications have been shown to be effective as prophylaxis against infection and in reducing the duration of infection when administered within the first 48 hours. Evidence also suggests that they reduce the likelihood of lower respiratory tract illness, antibiotic use, and hospitalization. Although some observational studies suggest that antivirals may prevent death among the elderly, the role in preventing death has not been adequately studied.

Use of antiviral medications for treatment of human infection due to avian influenza H5N1 and stockpiles of antiviral medications to prepare for a pandemic have been recommended in the USDHHS Pandemic Influenza Plan, by the Infectious Diseases Society of America, National Vaccine Advisory Committee (NVAC), and by several individual experts (1,2,4,5).

The U.S. Department of Health and Human Services (DHHS) is currently developing a national stockpile of antiviral medications. It is intended to cover 25% of the U.S. population. The stockpile consists of two components:

1. A stockpile that will be purchased, maintained, and distributed by the federal government.
2. An additional stockpile that can be purchased by States under a federal contract with matching state/federal funding (25% federal and 75% state). That component will be stored and distributed by States.

Table 1. Projected federal antiviral stockpiling plans, including Utah allocation from federally purchased stockpile and the amount that can be purchased using federal/state matching funds under the federal contract.

Purchase mechanism	**Federal stockpile (courses[1])**	**Anticipated Allocation to Utah (courses)**	**% of Utah population who could be treated[2]**
FY 2006 federal purchase	20 million	159,327	6.1 %
FY 2007 federal purchase	24 million	191,192	7.4 %
Federal Stockpile[3]	44 million	350,518	13.6 %
State Stockpile[4]	31 million	246,956	9.6 %
Total stockpile possible	75 million	597,475	23.1 %

Table notes:

[1] A course is defined here as 10 capsules of oseltamivir and could be used either as a 5 day treatment course or as a 10 day post-exposure prophylaxis course; several courses would be needed for prophylaxis against infection for the duration of an influenza outbreak in a community during a pandemic.

[2] NOTE: Federal allocations of courses to provide 25% coverage to Utah's population appear to have been based on the 2002 population; Utah's 2006 population = 2,582,371. The coverage percentages above are based on 2006 population

[3] Federal stockpile is currently being purchased with the total purchase to occur in two parts. 20 million courses will be purchased using FY 2006 funds and 24 million using FY2007 funds.

[4] State stockpile described here is the amount that can be purchased using state-federal matching funds under the federal contract. The match is 25% federal to 75% state. Additional courses can be purchased under the contract at the contract price but without federal matching funds.

The CDC currently recommends two types of antiviral medications for treatment of suggested possible pandemic influenza strains. The products recommended for purchase are oseltamivir, Tamiflu® produced by Roche Laboratories, Inc., and zanamivir, Relenza® produced by GlaxoSmitheKline. DHHS has recommended that stockpiles should consist of 80% Tamiflu® and 20% Relenza®.

The National Vaccine Advisory Committee has developed interim recommendations for use of antiviral medications for treatment during a pandemic (2, Attachment 1). In creating these recommendations, the Working Group considered a moderately severe pandemic with the greatest risk of death among those with risk factors, rather than a catastrophic pandemic like 1918. The highest value was placed on preventing death rather than minimizing economic impact. They recommended that most antiviral medications be used for treatment rather than for prophylaxis. That decision was based in part on the limited supply projected to be available and the much larger number of pills needed to provide prophylaxis to an individual for the entire course of a pandemic than to provide treatment after infection occurs. For example, a usual 5 day course (75 mg BID) oseltamivir requires 10 pills while a 6 week course (75 mg QD) of prophylactic use requires 42 pills. Prophylactic use was recommended in limited circumstances, including health care workers in critical roles. These recommendations might be altered according to available supplies, characteristics of a pandemic virus, or as part of pandemic mitigation plans that are currently being developed.

Objectives:

1. Determine whether to recommend purchase by the State of Utah of an antiviral medication stockpile.

2. Determine any conditions that should govern additional purchases (beyond those purchased by State of Utah) of antiviral medications under the federal contract by private or local entities.

3. Approve an interim guidance for use of an antiviral stockpile, including the approach to use (treatment vs. prophylaxis), priorities for use, and the approach to allocation among jurisdictions and priority groups.

4. Recommend a decision making process for revising recommendations based on circumstances prior to or during a pandemic.

Planning assumptions:

Assumptions regarding the role of antiviral medications during a pandemic [adapted from NVAC recommendations (2)]:

1. Treatment with a neuraminidase inhibitor will decrease the risks of pneumonia, hospitalization, and death.

2. Antiviral resistance to adamantanes will severely limit their use during a pandemic.

3. Antiviral medications will not be available during a pandemic in meaningful amounts except from stockpiles created for that purpose.

4. Treatment is most effective when initiated early during illness; antiviral treatment should be initiated within the first 48 hours of illness.

Assumptions regarding purchase of a stockpile of antiviral medications:

1. Federal grant funds cannot be used to purchase antiviral medications for stockpile caches. Product may be purchased through DHHS at a contract price and using federal matching funds (25%) up to a total of 246,956 courses. Additional courses may be purchased through that contract by the Utah Department of health at full cost (i.e., without the 25% federal match.) Additional courses may be available with matching funds if other states do not purchase their allotments.

2. Approximate costs per course of Tamiflu® - $19.32 and Relenza® - $21.72. For the 80/20 Tamiflu® to Relenza® stockpile ratio, with a total allotment of 246,956 available for State purchase, total projected amounts are approximately $3.6 millon. This total does not include storage expenses.

3. The DHHS was able to negotiate a fixed price for Tamiflu® based on the Euro during the negotiation period. This price is set until December 31, 2007 at which time DHHS will negotiate a new price with Roche Laboratories Inc. for the time remaining in the period of performance.

4. The State can purchase on behalf of the local health agencies. The State may “collect money from” local entities. The State is responsible for submitting the order and will be responsible for payment for the order when the product is delivered and the invoice is received.

5. Orders by the State on behalf of health care facilities would follow the same process as the orders on behalf of a local health agency. However, only government or public facilities or facilities that are a part of the State’s antiviral use plan may order drugs under the federal contract.

6. Each order will only be allowed one delivery site. If the one delivery site is a local health agency, the State must still pay for the purchase. The State is responsible for storage of the stockpile, either by itself or with partners.

7. The terms of the contract preclude stock rotation in advance of an influenza pandemic. DHHS is attempting to create a rotation policy satisfactory to all parties. Currently, states must assume that stockpiles of antiviral drugs will not be usable after they reach their rated shelf life. The CDC is currently seeking a 5 year shelf life extension for state stockpiles from FDA based on stability data, but it has not been approved at this time.

8. A letter of intent to CDC is required by December 29, 2006 for antiviral medication purchases under the federal contract.

Concerns:

1. Funding is not currently available to purchase antiviral medications or for ongoing storage costs.

2. The efficacy of antiviral medications against a novel influenza strain causing a pandemic is uncertain.

3. Antiviral medications have a finite shelf life. It is not known whether a pandemic will occur during the time period during which a stockpile could be used. It is uncertain whether it will be possible to extend the expiration date of purchased antiviral medications.

4. Public perception that antiviral distribution is effective and equitable can contribute to community resilience and trust during a pandemic. Access to treatment may increase the willingness of essential providers to place themselves at risk.

5. Decisions to allow purchase by some jurisdictions or private entities using the federal contract mechanism could raise questions about equity and fairness that should be addressed explicitly and openly.

6. Policies and procedures for an antiviral stockpile distribution plan need to consider criteria including adoption of existing recommendations, apportionment, accountability and control, and standardization of use. The need to treat within 48 hours of symptom onset for optimal benefit requires an efficient delivery system.

Attachment 1: Summary of National Vaccine Advisory Committee (NVAC) priority group recommendations for antiviral use during a pandemic:

	Priority Group	**Type of Use**[1]	**US treatment courses**[2]	**Utah courses**[3]	**Cumulative**	**Source**
1	Patients admitted to hospital [4]	T	7,500,000	62,300	62,300	Federal stockpile will cover 350,500 treatment courses
2	Health care workers (HCW) and EMS responders with direct patient contact	T	2,400,000	19,900	82,200	
3	Highest risk outpatients [5]	T	700,000	5,800	88,000	
4	Pandemic health responders [6]	T	900,000	7,500	95,500	
5	Increased risk outpatients [7]	T	22,400,000	185,900	281,400	
6	Outbreak response (nursing homes or other residential settings) [8]	PEP	2,000,000	16,600	299,000	
7	Critical health care workers [9]	P	4,800,000	39,800	337,800	
8	Pandemic societal responders [10]	T	2,700,000	22,400	360,200	State stockpile

9	Other outpatients [11]	T	47,300,000	392,600	752,800	would cover pandemic societal responders and about 236,900 (~60%) other outpatients
10	Highest risk outpatients	P	10,000,000	83,000	835,800	
11	Other HCW with direct patient contact	P	32,000,000	265,600	1,101,400	

Notes on Table:

[1] T = Treatment (requires a course of 2 capsules BID or 10 capsules and is defined as one course); P = Prophylaxis (requires 1 capsule each day for an assumed 40 days, or 40 capsules, i.e., 4 courses; more may be needed if the outbreak lasts longer than 40 days); PEP = Post-exposure prophylaxis (requires one capsule each day for 10 days, or 10 capsules, i.e., one course)

[2] Based on NVAC recommendations in HHS Pandemic Plan. Appendix D: NVAC/ACIP Recommendations for Prioritization of Pandemic Influenza Vaccine and NVAC Recommendations on Pandemic Antiviral Drug Use. <**http://www.hhs.gov/pandemicflu/plan/appendixd.html**>

[3] Projections of the number of Utah courses were based on an assumption that the number of people in each priority group in Utah would be proportionate in size to the Utah population compared to the US population. The population estimates were from 2005 US census. US population estimate is 296 million, UT population is 2.47 million. UT population is 0.83% of the US total. Many of the population sizes used by the NVAC were rough estimates and differences are possible between national estimates and Utah population.

[4] Patients admitted to hospital. This number would vary with the severity of the pandemic and capacity of the health care system. While not specified by NVAC, it is recommended in Utah that this group be considered to include those ill enough to be admitted to a hospital but for whom adequate hospital beds are not available as well as those actually admitted.

[5] The subset of persons designated by ACIP as at higher risk of influenza complications who are at highest risk, including persons with underlying illnesses placing them at greatest risk of severe complications (hematopoetic stem cell or solid organ transplant patients, immunosuppression due to treatment for cancer, hematological malignancy, or other illnesses such as rheumatoid arthritis, persons with HIV infection and CD4 count < 200, persons on dialysis, and women in 2nd or 3rd trimester of pregnancy.

[6] Public health workers involved in key pandemic response roles (e.g., vaccine administration, surveillance, antiviral distribution), public safety workers (po lice, fire and corrections personnel), and key government decision-makers (chief executives at federal, state, and local levels)

[7] The remainder of those currently designated by ACIP as being at high risk for influenza complications, including persons 6-23 months or >65 years of age, or with underlying illnesses as defined by ACIP.

[8] Treatment of cases and post-exposure prophylaxis to limit spread of influenza in settings where outbreaks pose substantial risk of serious morbidity, such as nursing homes.

[9] This recommendation is for prophylaxis for the duration of the outbreak in a community for personnel who are needed for effective functioning of selected critical health care units, including ED, ICU, and dialysis, and EMS units.

[10] This group includes persons who provide essential services that must be sustained during a pandemic to maintain public well-being, health and safety. It includes workers at health care

facilities who have no direct patient contact, but are important to operation of those facilities, and utility (electricity, gas, water), waste management, mortuary, and some transportation workers.
[11] Includes persons with influenza not in any of the previously described priority groups. Treatment of this group would help limit spread, limit time missed from work, and potentially reduce the burden on the health care system.

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Governor's Taskforce for Pandemic Influenza Preparedness

Management and Use of Influenza Vaccine During a Pandemic

Background and Description of Issue:

Influenza vaccination is the cornerstone for prevention and control of seasonal influenza and its complications. Planning for administration of a pandemic vaccine is an important component of pandemic preparation. An influenza pandemic would be a worldwide outbreak caused by a novel influenza virus to which humans have limited or no immunity. Based on historical experience, the severity of illness caused by a pandemic could vary widely. Some pandemics have caused widespread, serious morbidity and mortality. The best lifesaving protection against a pandemic influenza virus would be an effective vaccine. However, a pandemic vaccine can only be made after the pandemic virus has been identified and cannot be stockpiled in advance of an outbreak. The vaccine used for seasonal influenza would not be effective against a pandemic influenza virus. Consequently, a vaccine would probably not be available during the early stages of a pandemic and would be in limited supply thereafter. Once a pandemic influenza vaccine is available, two doses administered at visits separated by a month or more will probably be needed to stimulate effective immunity. The distribution and delivery of this vaccine would be an important and demanding component of pandemic response efforts.

Current Vaccine Distribution and Administration:
All influenza vaccine for the United States market is produced in the private sector, and over 90% of seasonal influenza vaccine is distributed through private sector distributors for use by health care providers. Influenza vaccine is produced by a complex process requiring several months. Vaccine production and distribution have experienced problems during recent seasons. Influenza vaccine is currently targeted at several high risk populations, but vaccination rates even in those targeted populations have been relatively poor (62% of elderly adults, 26% of high risk adults, 36% of health care workers, and 9% of non-priority group adults, 2004-5, U.S.).[3]

Vaccine Availability and Distribution during a Pandemic:
Production of pandemic vaccine will require 4-6 months from the time the pandemic strain is selected. The number of doses that are available once production begins will depend on manufacturing capacity and characteristics of the vaccine. Current information suggests that once production begins, 12,500-112,500 doses per month might be available for Utah based on 2006 production capacity. Those estimates would increase to 50,000-450,000 doses per month with planned 2008 production capacity[2]. All vaccine will be purchased and distributed by the federal government.

Approaches to vaccine delivery used for seasonal influenza or for other vaccine delivery situations may not be appropriate during a pandemic. If vaccine administration takes place during a community outbreak, gathering large numbers of people in a single setting would be undesirable. This might make mass vaccination clinics less desirable ways to provide vaccine to the public. In addition, for priority groups that are defined based on

occupation (e.g., health care workers), it may be most appropriate to administer vaccine at their place of work. Another consideration would be how to reach people confined to their home or to an institution. Plans will need to assure distribution of vaccine to Native American Tribes.

Systems to Track Vaccine Administration during a Pandemic:
The federal government will require UDOH to monitor and report on vaccine administration. This would best be done through a state-based system that tracks doses administered, documents priority group coverage, and provides ongoing monitoring and investigation of any adverse events. The Emergency Immunization Management System (EIMS), which is integrated with the Utah Statewide Immunization Information System (USIIS), was developed to deal with these issues during smallpox vaccine administration in 2002 and is compatible with CDC systems.

Prudent expansion of utilization of USIIS through both increased provider enrollment and improved transfer of data collected by other systems is critical so that Utah can utilize tools and resources that have been fully tested and are in current use by providers and stakeholders statewide. Another statewide system, the Utah Notification and Information System (UNIS), could also be utilized in pandemic scenarios. It is capable of immediately relaying information on vaccine related issues to the necessary personnel. Properly developed and implemented, these systems could provide the state's vaccine management structure for an influenza pandemic.

Vaccine Prioritization:
At the beginning of a pandemic, scarcity of vaccine will require that the limited supply be administered according to priorities intended to achieve the greatest benefit. National vaccine recommendations, including those for influenza vaccine, are developed by the Advisory Committee on Immunization Practice (ACIP), National Vaccine Advisory Committee (NVAC), and CDC. The ACIP has issued interim recommendations for priority groups to receive limited vaccine during a pandemic[4]. Those recommendations differ from priority groups for seasonal vaccine in giving higher priority to several groups of essential responders. The U.S. Department of Health and Human Services is currently seeking input and may revise the current recommendations.

Utah will receive periodic shipments of vaccine based primarily on population size. UDOH and vaccine providers will need to consider the possibility that a second dose may be needed to achieve effective immunity when allocating vaccine to individuals. This may necessitate periodic review of pandemic priorities in relation to total available amounts of vaccine for distribution. The public might not readily understand or accept these decisions. It will be very important to discuss the issue openly and frankly, and to develop consensus for the pandemic priority groups that are to be used. Effective public communications, operational plans, and training for public health staff, partners and volunteers will be needed to support providing vaccine according to priority groups.

Strategies to Improve Preparedness in Key Settings and Populations:
Several pre-pandemic measures, initiatives, and technologies with regard to influenza can provide protection for Utah's population. It is important that we establish an effective system to assure high coverage of health care workers with seasonal influenza vaccine. This would establish a system to assure successful delivery of vaccine during a pandemic. The Utah Adult Immunization Coalition (UAIC) and UDOH recently developed and distributed "best practice" immunization and infection control standards and policies for health care workers. Adoption of these standards and policies in facilities would provide immediate benefits in prevention of infectious diseases and substantially improve readiness for a pandemic. Another important measure is the ongoing vaccination and documentation of coverage in vulnerable populations (e.g., long term care and assisted living facilities). Utah has become one of only 25 states with a rule requiring facilities to have standing orders for influenza and pneumococcal vaccine assessment/coverage, and is one of only two states with annual reporting and tracking of vaccine coverage levels for this high risk population. Consideration is also being given to requiring health care facilities to report on influenza vaccination rates as a patient safety measure.

Serious morbidity and mortality from influenza is often due to secondary bacterial pneumonia. Improved coverage with the pneumococcal vaccine among those for whom it is recommended may decrease the risk of that complication should a pandemic occur.

Mass clinic exercises are an important training component of pandemic vaccine preparation and need to be regularly practiced if they are to meet pandemic vaccination challenges. Mass clinic exercises that involve administration of actual vaccine (rather than mock clinics in which no vaccine is given) result in a more realistic test. Such clinics can also provide immediate public health benefits by increasing coverage of underutilized vaccines or otherwise addressing specific community needs. Unfortunately, no current funding is available for this type of exercise.

Goal:

Work with healthcare partners and other stakeholders to develop a statewide plan for pandemic influenza vaccine distribution, administration according to established priority groups, monitoring effectiveness, safety, and adherence to priority groups, and implement practices and policies now that establish a foundation of basic prevention and protection.

Objectives:

1. Assure an effective plan is in place to manage and use vaccine during a pandemic that:
    A. Provides vaccine to priority populations including personnel essential to the functioning of society; and
    B. Provides needed information on accountability and effectiveness of vaccine distribution and use.

2. Recommend pre-pandemic strategies that provide protection to Utah citizens against seasonal influenza and other infectious disease threats and can serve as a foundation for response during a pandemic.
3. Approve interim recommendations for priority groups to receive vaccine and recommend a mechanism for revising recommendations based on the specific circumstances of a pandemic.

Planning Assumptions:

1. Under most scenarios, a vaccine would not be available during the early stages of a pandemic and would be in limited supply thereafter. It would require two doses, separated over a period of time.
2. A pandemic influenza vaccine would be purchased and distributed by CDC primarily according to population size.
3. In a pandemic, priority recommendations would be established nationally by ACIP/NVAC/CDC. The priorities for administration of available pandemic influenza vaccine would be different from those used for seasonal influenza vaccination. In particular, health care providers and other essential community responders would receive a higher priority and probably would be the first group to receive vaccine before members of the general public.
4. Priorities for vaccine use established in advance might need to be altered due to specific circumstances of the vaccine, vaccine supply, or the health impact of the vaccine on different populations (e.g., whether the greatest morbidity and mortality occurred among infants and older adults as in seasonal influenza or among young adults as was true in 1918).
5. Statewide utilization of procedures and information systems to track vaccine inventory, administration, coverage of priority groups, adverse events, and effectiveness of distribution would be required by federal agencies and essential to an effective response. Such procedures and systems need to be in place and tested prior to a pandemic to be effective.
6. In the absence of vaccine during the early phases of a pandemic, other health protection measures such as pneumococcal vaccination and infection control practices can provide some protection against complications of influenza.
7. Space for vaccine storage, transportation and supplies for administration of vaccine could be in short supply.

Concerns:

1. Supplies to support vaccine administration during a pandemic will be inadequate unless stockpiles are procured in advance. Funds to procure such stockpiles need to be identified.
2. Funding to purchase vaccine for mass clinic exercises is not currently available.
3. The public might not understand the need to administer limited vaccine according to priority groups or might not understand or support the specific priority groups that have been established.

4. The public might not understand the importance of pandemic influenza vaccination or might not trust the safety and effectiveness of the vaccine and consequently not achieve vaccination rates needed to protect individuals and the community.

Appendix:

Background on Seasonal Influenza Vaccine Distribution:

All annual influenza vaccine for use in the United States is produced in the private sector. Over 90% of this vaccine is distributed in the United States through private-sector distributors for use by health care providers (e.g., physician providers, hospitals, managed care, long term care, pharmacies, home health, local health departments, and community health centers). At present, two vaccine types are recommended for protection against influenza in the United States: an inactivated virus vaccine injected into muscle; and a live virus vaccine administered as a nasal spray. The injectable vaccine currently represents the vast majority of influenza vaccine administered in this country. Influenza vaccine is unique because its active ingredients – the virus strains used to produce the vaccine – change almost every year. It is produced by a complex manufacturing process that spans several months during which manufacturers must cultivate the appropriate strains, produce massive quantities of vaccine, and allow time for the inspection and approval of the Food and Drug Administration (FDA). Because of this, manufacturers cannot produce the entire supply of influenza vaccine needed each year at one time. Some vaccine is available in late summer, and production and distribution continue into December and January. The distribution timeframe of vaccine to individual providers depends on a variety of factors: the vaccine manufacturer or third party distributor that the order was placed with; the date the order was received (companies/distributors tend to fill orders on a first-come, first-serve basis); contractual obligations (vaccine manufacturers may have contracts with penalties for non-delivery of vaccine); and the target group served. These factors present an enormous challenge for manufacturers and create uncertainty for vaccine supply and timely distribution each year. Government agencies, including the Centers for Disease Control and Prevention (CDC), have little control over the annual distribution of the private-sector influenza vaccine.

The Utah Department of Health (DOH), Immunization Program, purchases influenza vaccine through a CDC negotiated contract with three vaccine manufacturers. This vaccine is for specific use with the Vaccine for Children (VFC) program. State and local health departments may also purchase vaccine through the private sector distribution markets with the Minnesota Multistate Contract (MMCAP) or their own contract orders with a manufacturer or distributor. Native American tribes can purchase influenza vaccine through the Veterans Administration Prime Vendor contract and through the private sector distribution markets as well.

The recent history of influenza vaccine seasons has shown there is “no normal season”. Since 2000, each influenza season has presented different serious challenges, nationally and in Utah, including a variety of vaccine supply issues (shortages, small yields of product, non-uniform distribution, changing manufacturers) and high early disease rates.

Lessons learned and insights gained from recent experiences with influenza vaccine seasons can be applied to influenza pandemic planning.

In the recent past years of supply challenges, CDC has distributed available vaccine allocations for Utah (based on state population) to the DOH state vaccine depot. The DOH depot is a secure depot with constant alarm monitoring and with emergency generator backup. The DOH depot has had much experience in recent shortage years in vaccine management, storage and distribution. Vaccine was then distributed to local health departments for local coverage of the priority groups/stakeholders. The local health departments have tested their capacity for mass vaccination clinics. They also had experience during the smallpox vaccination program with Investigational New Drug (IND) protocols and Emergency Use Authorization (EUA) procedures that would be needed with a new pandemic vaccine not yet approved by the Food and Drug Administration (FDA).

Vaccine Distribution/Priority/Preparedness Planning Workgroup and reviewers: Linda Abel; Sherrie Ahlstrom; Jan Buttrey; Guy Dansie; Dr. George Delavan; Philip Gresham; Dr. DeVon Hale; Dr. Tamara Lewis; Richard Melton; Susan Mottice; Konnie Parke; Dr. Robert Rolfs; Carlie Shurtliff; Audrey Stevenson; and Sharon Talboys.

Governor's Taskforce for Pandemic Influenza Preparedness

Community Mitigation and its Potential Consequences

Background and Description of Issue:

An influenza pandemic, particularly one as severe as 1918, could substantially disrupt society. Potential consequences include severe stress on the ability of hospitals and health care providers to care for the sick and disruptions of essential community services. Slowing the spread of the pandemic virus could potentially reduce the number of people who become ill. This could have a dual benefit if it also reduced demand on the community and the health care system, allowing health care and other support systems to better meet the need for those services.

During the first several months of a pandemic, vaccine will probably not be available. However, several non-pharmaceutical interventions have the potential to slow the spread of the virus. These interventions seek by a variety of means to limit contact between those who are infectious and those who would be susceptible to the infection. Recent examinations of the 1918 pandemic as well as mathematical modeling studies of hypothetical pandemics have suggested potential benefits of several strategies. The Centers for Disease Control and Prevention (CDC) has been working for several months on a plan for community mitigation. Several meetings have been held to gather comments from stakeholders and a draft plan is expected to be released early in 2007.

Measures that have potential to slow spread of a pandemic virus include:

- Voluntary isolation of persons with influenza (cases).
- Voluntary home quarantine of household contacts of cases.
- School closure and steps to prevent children from gathering together elsewhere.
- Workplace social distancing interventions, including exclusion of ill workers, reducing face-to-face contact in the workplace, and respiratory and hand hygiene.
- Community social distancing, including cancelling mass gatherings, closing public places, and measures to reduce transport crowding.
- Infection control measures in the home, community, and non-healthcare workplaces; including respiratory and hand hygiene, use of face masks or respirators, and environmental cleaning and disinfection.

Some discussions also include early antiviral treatment for cases and post-exposure prophylaxis for household contacts; this would depend on an adequate supply of antiviral medications. Planning also includes consideration of domestic travel precautions, advisories, or restrictions although modeling studies have predicted they will not have a substantial impact at achievable levels of adherence.

Two major concerns apply to most of these potential measures. First, there is substantial uncertainty regarding the effectiveness of these measures alone or in combination. There are few adequate studies of their use and effectiveness. There is also uncertainty regarding many of the parameters used in the mathematical models that have been developed to predict their effects during hypothetical pandemics. Second, many of them

can have substantial adverse effects even if they are successful in slowing spread. In particular, voluntary home isolation of ill persons, voluntary home quarantine of household contacts, and school closure can potentially increase absenteeism rates among workers and increase the need for limited support services. In addition, facility closures, mass gathering cancellations, and travel restrictions can have substantial economic impact as well as affecting community resilience in other ways (e.g., cancelling faith-based and social gatherings).

Objectives:

1. Help to assure that appropriate steps are taken to reduce spread of a pandemic influenza virus in Utah.

2. Anticipate and plan to minimize the potential adverse effects of mitigation measures should they be needed.

Planning Assumptions:

1. A severe influenza pandemic can overwhelm health care and other resources. This could lead to inability to adequately treat all those who become ill and to support all those who need support, as well as threaten the delivery of essential services and continuity of business operations.

2. Measures to slow the spread of the pandemic virus might reduce the ultimate attack rate (percentage becoming ill) during a first wave prior to availability of vaccine, or might delay or reduce the attack rates at the peak of the outbreak in a community. This could allow health care and other support services to better serve those who need them and limit the impact on essential services and business operations.

3. Measures to slow the spread of the pandemic virus which themselves interrupt community activities (e.g., school closures, home isolation/quarantine, event cancellations, facility closures) can have adverse economic and social effects.

4. There will remain substantial uncertainty regarding the effectiveness of these measures as well as about their adverse effects.

Potential Recommendations by Taskforce:

1. The State Office of Education, school districts, colleges/universities, individual schools, and other agencies/entities responsible for delivering education, in collaboration with public health authorities, should plan for measures that can make schools safer during a pandemic by reducing opportunities for transmission.

2. The State Office of Education, school districts, colleges/universities, individual schools, and other agencies/entities responsible for delivering education, in

collaboration with public health authorities, should plan and take action to support their ability to maintain the educational process during a prolonged school closure.

3. The Utah Department of Health, in collaboration with stakeholders, should examine ways to reduce transmission in childcare settings during a pandemic and also consider steps that would help prepare society for childcare facility closures that might be required during a pandemic.

Author of issue paper: Robert Rolfs
This paper was presented in early draft form to the Pandemic Influenza Workgroup and reviewed with Patti Pavey and Drs. Sundwall, Mason, and Huefner.

From HHS Pandemic Influenza Plan. Appendix D: NVAC/ACIP Recommendations for Prioritization of Pandemic Influenza Vaccine and NVAC Recommendations on Pandemic Antiviral Drug Use

Table D-1: Vaccine Priority Group Recommendations*

Tier	Subtier	Population	Rationale
1	A	• Vaccine and antiviral manufacturers and others essential to manufacturing and critical support (~40,000) • Medical workers and public health workers who are involved in direct patient contact, other support services essential for direct patient care, and vaccinators (8-9 million)	• Need to assure maximum production of vaccine and antiviral drugs • Healthcare workers are required for quality medical care (studies show outcome is associated with staff-to-patient ratios). There is little surge capacity among healthcare sector personnel to meet increased demand
	B	• Persons > 65 years with 1 or more influenza high-risk conditions, not including essential hypertension (approximately 18.2 million) • Persons 6 months to 64 years with 2 or more influenza high-risk conditions, not including essential hypertension (approximately 6.9 million) • Persons 6 months or older with history of hospitalization for pneumonia or influenza or other influenza high-risk condition in the past year (740,000)	• These groups are at high risk of hospitalization and death. Excludes elderly in nursing homes and those who are immunocompromised and would not likely be protected by vaccination
	C	• Pregnant women (approximately 3.0 million) • Household contacts of severely immunocompromised persons who would not be vaccinated due to likely poor response to vaccine (1.95 million with transplants, AIDS, and incident cancer x 1.4 household contacts per person = 2.7 million persons) • Household contacts of children <6 month olds (5.0 million)	• In past pandemics and for annual influenza, pregnant women have been at high risk; vaccination will also protect the infant who cannot receive vaccine. • Vaccination of household contacts of immunocompromised and young infants will decrease risk of exposure and infection among those who cannot be directly protected by vaccination
	D	• Public health emergency response workers critical to pandemic response (assumed one-third of estimated public health workforce=150,000) • Key government leaders	• Critical to implement pandemic response such as providing vaccinations and managing/monitoring response activities • Preserving decision-making capacity also critical for managing and implementing a response

2	A	• Healthy 65 years and older (17.7 million) • 6 months to 64 years with 1 high-risk condition (35.8 million) • 6-23 months old, healthy (5.6 million)	• Groups that are also at increased risk but not as high risk as population in Tier 1B
	B	• Other public health emergency responders (300,000 = remaining two-thirds of public health work force) • Public safety workers including police, fire, 911 dispatchers, and correctional facility staff (2.99 million) • Utility workers essential for maintenance of power, water, and sewage system functioning (364,000) • Transportation workers transporting fuel, water, food, and medical supplies as well as public ground public transportation (3.8 million) Telecommunications/IT for essential network operations and maintenance (1.08 million)	• Includes critical infrastructure groups that have impact on maintaining health (e.g., public safety or transportation of medical supplies and food); implementing a pandemic response; and on maintaining societal functions
3		• Other key government health decision-makers (estimated number not yet determined) • Funeral directors/embalmers (62,000)	• Other important societal groups for a pandemic response but of lower priority
4		• Healthy persons 2-64 years not included in above categories (179.3 million)	• All persons not included in other groups based on objective to vaccinate all those who want protection

Table D-2: Antiviral Drug Priority Group Recommendations*

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

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

References

1. HHS Pandemic Influenza Plan: Supplement 7 Antiviral Drug Distribution and Use. Accessed October 27, 2006 at: **http://www.hhs.gov/pandemicflu/plan/sup7.html**

2. HHS Pandemic Influenza Plan: Appendix D: NVAC/ACIP Recommendations for Prioritization of Pandemic Influenza Vaccine and NVAC Recommendations on Pandemic Antiviral Drug Use. Accessed October 27, 2006 at:
http://www.hhs.gov/pandemicflu/plan/appendixd.html

3. Gostin LO. Medical countermeasures for pandemic influenza: ethics and the law. JAMA 2006;295:554-556.
NOTE: Discussion of ethical principles that might guide rationing, not a sophisticated discussion of advisability of use or how to use.

4. Writing Committee of the WHO. Avian Influenza A (H5N1) Infection in Humans. N Engl J Med 2005;353:1374-85
NOTE: Advocates use of antivirals in patients with H5N1

5. Bartlett JG. Hayden FG. Influenza A (H5N1): Will it be the next pandemic influenza? Are we ready? Ann Int Med 2005;143:460-461.
NOTE: Advocates stockpiling of oseltamivir; cites IDSA recommendation of stockpile for 50% of population.

6. de Jong MD, Thanh TT, et al. Oseltamivir resistance during treatment of influenza A (H5N1) infection. N Engl J Med 2005;353:2667-2672.

7. Moscona A. Oseltamivir resistance—disabling our influenza defense. N Engl J Med 2005;353:2533-37.

8. Weinstein RA. Planning for epidemics – the lessons of SARS. N Engl J Med 2004;350:2332-2334.

9. World Health Organization. Severe acute respiratory syndrome (SARS): status of the outbreak and lessons for the immediate future. World Health Organization, Geneva, 2003. Accessed September 12, 2006 at: http://www.who.int/csr/media/sars_wha.pdf

10. The Federal Response to Hurricane Katrina: Lessons Learned. February 2006.Accessed September 12, 2006 at: http://www.whitehouse.gov/reports/katrina-lessons-learned.pdf

11. CDC. Crisis and Emergency Risk Communications. Atlanta. September 2002.

12. Meltzer MI, Cox NJ, Fukuda KJ. The Economic Impact of Pandemic Influenza in the United States: Priorities for Intervention. EID 1999;5:659-671.
Accessed at: http://www.cdc.gov/Ncidod/eid/vol5no5/meltzer.htm

13. International Monetary Fund (IMF). The global economic and financial impact of an avian flu pandemic and the role of the IMF. February 28, 2006. Accessed at:
http://www.imf.org/external/pubs/ft/afp/2006/eng/022806.pdf

14. Osterholm MT. Preparing for the next pandemic. Foreign Affairs July/August 2005. Accessed at: http://www.foreignaffairs.org/20050701faessay84402/michael-t-osterholm/preparing-for-the-next-pandemic.html

15. Basel Committee on Banking Supervision. High-level principles for business continuity. August 2006. Accessed at: http://www.bis.org/publ/joint17.htm

16. The Monetary Authority of Singapore. MAS Consultation Paper: Guidelines on Business Continuity Planning. January 2003. Accessed at: http://www.mas.gov.sg/regulations/download/BCP_Guidelines10Jan03.pdf

17. U.S. Department of Homeland Security. Pandemic Influenza: Preparedness, Response, and Recovery. Guide for critical infrastructure and key resources. June 2006. Accessed at: https://www.fsscc.org/reports/2006/CI_KR_Pandemic_Guide.pdf

18. HHS Pandemic Influenza Plan, U.S. Department of Health and Human Services, November 2005.

19. Pandemic Influenza Vaccination: A Guide for State, Local, Territorial, and Tribal Planners. December 11, 2006.

20. Nichol KL, Treanor JJ. Vaccines for seasonal and pandemic influenza. JID 2006;194(Suppl 2):S111-S118).

21. WHO Writing Group. Nonpharmaceutical interventions for pandemic influenza, national and community measures. Emerging Infectious Diseases 2006;12:88-94. Accessed January 2, 2006 at: http://www.cdc.gov/ncidod/EID/vol12no01/05-1371.htm

22. Division of Global Migration and Quarantine, CDC. Menu of community mitigation tools for consideration during an influenza pandemic in the United States, October 31, 2006. Unpublished confidential draft document distributed at December meeting.

Glossary

adjuvant: A substance added to a vaccine to improve the immune response so that less vaccine is needed to provide protection.

antibiotic: A substance produced by bacteria or fungi that destroys or prevents the growth of other bacteria and fungi.

antibody: A protein produced by the body's immune system in response to a foreign substance (antigen). Our bodies fight off an infection by producing antibodies. An antibody reacts specifically with the antigen that triggered its formation and its function is to inactivate the antigen.

antigen: Any foreign substance, usually a protein, that stimulates the body's immune system to produce antibodies. (The name antigen reflects its role in stimulating an immune response - antibody generating.)

antiviral: Drug that is used to prevent or cure a disease caused by a virus, by interfering with the ability of the virus to multiply in number or spread from cell to cell.

APHIS: Animal and Plant Health Inspection Service, a part of the U.S. Department of Agriculture that provides leadership in ensuring the health and care of animals and plants.

asymptomatic: Presenting no symptoms of disease.

avian flu: A highly contagious viral disease with up to 100% mortality in domestic fowl caused by influenza A virus subtypes H5 and H7. All types of birds are susceptible to the virus but outbreaks occur most often in chickens and turkeys. The infection may be carried by migratory wild birds, which can carry the virus but show no signs of disease. Humans are only rarely affected.

carrier: A bearer and transmitter of a agent capable of causing infectious disease. An asympotomatic carrier shows no symptoms of carrying an infectious agent.

CDC: Centers for Disease Control and Prevention, the U.S. government agency at the forefront of public health efforts to prevent and control infectious and chronic diseases, injuries, workplace hazards, disabilities, and environmental health threats. CDC is one of 13 major operating components of the Department of Health and Human Services.

clade: A group of organisms, such as a species, whose members share homologous features derived from a common ancestor. The avian virus H5N1 clade 1 includes human and bird isolates from Vietnam, Thailand, Cambodia, Laos, and Malaysia. Clade 2 viruses have been identified in bird isolates from China, Indonesia, Japan, and South Korea.

contagious: A contagious disease is easily spread from one person to another by contact with the infectious agent that causes the disease. The agent may be in droplets of liquid particles made by coughing or sneezing, contaminated food utensils, water or food.

DOI: U.S. Department of Interior, the government agency that protects and provides access to our Nation's natural resources.

drift: One process in which influenza virus undergoes mutation. The amount of change can be subtle or dramatic, but eventually as drift occurs, a new variant strain will become dominant. This process allows influenza viruses to change and re-infect people repeatedly through their lifetime and is the reason influenza virus strains in vaccine must be updated each year. See shift.

enzyme: A substance that speeds up chemical reaction. Every chemical reaction in living organisms is facilitated by an enzyme.

EPA: U.S. Environmental Protection Agency, the government agency that leads the nation's environmental science, research, education and assessment efforts.

epidemic: A disease occurring suddenly in humans in a community, region or country in numbers clearly in excess of normal. See epizootic and pandemic.

epizootic: A disease occurring suddenly in animals in a community, region or country in numbers clearly in excess of normal. See epidemic and panzootic.

Essential responders: Persons whose services, including when performed as volunteers, are essential to allow an effective community response to an event.

FAO: Food and Agriculture Organization of the United Nations leads international efforts to defeat hunger. FAO serves both developed and developing countries and acts as a neutral forum where all nations meet as equals to negotiate agreements and debate policy.

FDA: U.S. Food and Drug Administration, the government agency responsible for protecting the public health by assuring the safety, efficacy, and security of human and veterinary drugs, biological products, medical devices, our nation's food supply, cosmetics, and products that emit radiation. FDA is one of 13 major operating components of the Department of Health and Human Services.

H5N1: A variant of avian influenza, which is a type of influenza virulent in birds. It was first identified in Italy in the early 1900s and is now known to exist worldwide.

HPAI: Highly Pathogenic form of Avian Influenza. Avian flu viruses are classified based upon the severity of the illness and HPAI is extremely infectious among humans. The

rapid spread of HPAI, with outbreaks occurring at the same time, is of growing concern for human health as well as for animal health. See LPAI.

homologous: Similar in position, structure, function, or characteristics.

host: An organism on or in which a parasite lives.

hemagglutinin: An important surface structure protein of the influenza virus that is an essential gene for the spread of the virus throughout the respiratory tract. This enables the virus to attach itself to a cell in the respiratory system and penetrate it. Referred to as the "H" in influenza viruses. See neuraminidase.

immune system: The cells, tissues and organs that help the body to resist infection and disease by producing antibodies and/or altered cells that inhibit the multiplication of the infectious agent.

infectious agent: Any organism, such as a pathogenic virus, parasite, or bacterium, that is capable of invading body tissues, multiplying, and causing disease.

influenza: A serious disease caused by viruses that infect the respiratory tract.

isolate: A pure strain that has been isolated as from diseased tissue, contaminated water, or the air.

LPAI: Low Pathogenic form of Avian Influenza. Most avian flu strains are classified as LPAI and typically cause little or no clinical signs in infected birds. However, some LPAI virus strains are capable of mutating under field conditions into HPAI viruses. See HPAI.

MRC: The Medical Reserve Corps establishes teams of local volunteer medical and public health professionals who can contribute their skills and expertise throughout the year and during times of community need.

mutation: Any alteration in a gene from its natural state. This change may be disease causing or a benign, normal variant. Specific mutations and evolution in influenza viruses cannot be predicted, making it difficult if not impossible to know if or when a virus such as H5N1 might acquire the properties needed to spread easily among humans.

neuraminidase: An important surface structure protein of the influenza virus that is an essential enzyme for the spread of the virus throughout the respiratory tract. It enables the virus to escape the host cell and infect new cells. Referred to as the "N" in influenza viruses. See hemagglutinin.

NIAID: National Institute of Allergy and Infectious Diseases conducts and supports basic and applied research to better understand, treat, and ultimately prevent infectious,

immunologic, and allergic diseases. NIAID research has led to new therapies, vaccines, diagnostic tests, and other technologies that have improved the health of millions. NIAID is one of 13 major operating components of the Department of Health and Human Services.

NVPO: National Vaccine Program Office is responsible for coordinating and ensuring collaboration among the many federal agencies involved in vaccine and immunization activities. It is part of the Department of Health and Human Services.

OIE (Office International des Epizooties): World Organisation for Animal Health, an international organization including 167 member countries that collects, analyses, and reports information on global animal disease situations.

pandemic: The worldwide outbreak of a disease in humans in numbers clearly in excess of normal. See panzootic and epidemic.

panzootic: The worldwide outbreak of a disease in animals in numbers clearly in excess of normal. See pandemic and epizootic.

parasite: An organism living in, with, or on another organism.

pathogenic: Causing disease or capable of doing so.

pre-pandemic vaccine: A vaccine created to protect against currently circulating H5N1 avian influenza virus strains with the expectation that it would provide at least some protection against new virus strains that might evolve. It would likely be the best vaccine defense available until a vaccine specific to the new strain could be developed.

prophylactic: A medical procedure or practice that prevents or protects against a disease or condition (eg, vaccines, antibiotics, drugs).

reassortment: The rearrangement of genes from two distinct influenza strains to produce a novel viral strain.

seasonal flu: A respiratory illness that can be transmitted person to person. Most people have some immunity, and a vaccine is available. This is also known as the common flu or winter flu.

shift: The process in which the existing H (hemagglutinin) and N (neuraminidase) are replaced by significantly different H and Ns. These new H or H/N combinations are perceived by human immune systems as new, so most people do not have pre-existing antibody protection to these novel viruses. This is one of the reasons that pandemic viruses can have such a serve impact on the health of populations. See drift.

species: A class of plants or animals having common attributes and designated by a common name. Theoretically, plants or animals of different species cannot interbreed. However, occasionally this does not hold true.

strain: A group of organisms within a species or variety.

USAID: United States Agency for International Development provides foreign assistance to developing countries in order to further America's foreign policy interests in expanding democracy and free markets while improving the lives of the citizens of the developing world.

USDA: U.S. Department of Agriculture, the government agency responsible for regulating the safety and development of food, agriculture, and natural resources.

vaccine: A preparation consisting of antigens of a disease-causing organism which, when introduced into the body, stimulates the production of specific antibodies or altered cells. This produces an immunity to the disease-causing organism. The antigen in the preparation can be whole disease-causing organisms (killed or weakened) or parts of these organisms.

virulent: Highly lethal; causing severe illness or death.

virus: Any of various simple submicroscopic parasites of plants, animals, and bacteria that often cause disease and that consist essentially of a core of RNA or DNA surrounded by a protein coat. Unable to replicate without a host cell, viruses are typically not considered living organisms.

waterfowl: Birds that swim and live near water, including ducks, geese, and swans.

WHO: World Health Organization, an agency of the United Nations established in 1948 to further international cooperation in improving health conditions.

zoonoses: Diseases that are transferable from animals to humans.