Chapter 1 — Executive Summary

The Pandemic Threat

Influenza viruses have threatened the health of animal and human populations for centuries. Their diversity and propensity for mutation have thwarted our efforts to develop both a universal vaccine and highly effective antiviral drugs. A pandemic occurs when a novel strain of influenza virus emerges that has the ability to infect and be passed between humans. Because humans have little immunity to the new virus, a worldwide epidemic, or pandemic, can ensue. Three human influenza pandemics occurred in the 20th century, each resulting in illness in approximately 30 percent of the world population and death in 0.2 percent to 2 percent of those infected. Using this historical information and current models of disease transmission, it is projected that a modern pandemic could lead to the deaths of 200,000 to 2 million people in the United States alone.

The animal population serves as a reservoir for new influenza viruses. Scientists believe that avian, or bird, viruses played a role in the last three pandemics. The current concern for a pandemic arises from an unprecedented outbreak of H5N1 influenza in birds that began in 1997 and has spread across bird populations in Asia, Europe, and Africa. The virus has shown the ability to infect multiple species, including long-range migratory birds, pigs, cats, and humans. It is impossible to predict whether the H5N1 virus will lead to a pandemic, but history suggests that if it does not, another novel influenza virus will emerge at some point in the future and threaten an unprotected human population.

The economic and societal disruption of an influenza pandemic could be significant. Absenteeism across multiple sectors related to personal illness, illness in family members, fear of contagion, or public health measures to limit contact with others could threaten the functioning of critical infrastructure, the movement of goods and services, and operation of institutions such as schools and universities. A pandemic would thus have significant implications for the economy, national security, and the basic functioning of society.

Chapter 2 — U.S. Government Planning for a Pandemic

The President announced the *National Strategy for Pandemic Influenza (Strategy)* on November 1, 2005. The *Strategy* provides a high-level overview of the approach that the Federal Government will take to prepare for and respond to a pandemic, and articulates expectations of non-Federal entities to prepare themselves and their communities. The *Strategy* contains three pillars: (1) preparedness and communication; (2) surveillance and detection; and (3) response and containment.

Preparedness for a pandemic requires the establishment of infrastructure and capacity, a process that can take years. For this reason, significant steps must be taken now. The Strategy affirms that the Federal Government will use all instruments of national power to address the pandemic threat. The Federal Government will collaborate fully with international partners to attempt containment of a potential pandemic wherever sustained and efficient human-to-human transmission is documented, and will make every reasonable effort to delay the introduction of a pandemic virus to the United States. If these efforts fail, responding effectively to an uncontained pandemic domestically will require the full participation of all levels of government and all segments of society. The Implementation Plan (Plan) for the *Strategy* makes it clear that every segment of society must prepare for a pandemic and will be a part of the response. The Plan further recognizes that the Federal Government must provide clear criteria and

decision tools to inform State, local, and private sector planning and response actions, and that Federal agencies must be prepared to supplement and support State and local efforts where necessary and feasible.

The *Strategy* must be translated into tangible action that fully engages the breadth of the Federal Government. This Plan provides a common frame of reference for understanding the pandemic threat and summarizes key planning considerations for all partners. It also proposes that Federal departments and agencies take specific, coordinated steps to achieve the goals of the *Strategy* and outlines expectations of non-Federal stakeholders in the United States and abroad. Joint and integrated planning across all levels of government and the private sector is essential to ensure that available national capabilities and authorities produce detailed plans and response actions that are complementary, compatible, and coordinated.

The Federal Government has already taken a historic series of actions, domestically and internationally, to address the pandemic threat. The actions include the development of a promising human vaccine against the H5N1 avian influenza virus, the submission of a $7.1 billion budget request over several years to support pandemic preparedness, the establishment of the International Partnership on Avian and Pandemic Influenza, and the first Cabinet-level exercise to assess the Federal Government response to a naturally occurring threat.

Chapter 3 — Federal Government Response to a Pandemic

The goals of the Federal Government response to a pandemic are to: (1) stop, slow, or otherwise limit the spread of a pandemic to the United States; (2) limit the domestic spread of a pandemic, and mitigate disease, suffering and death; and (3) sustain infrastructure and mitigate impact to the economy and the functioning of society (see *Stages of Federal Government Response* between Chapters 5 and 6).

Unlike geographically and temporally bounded disasters, a pandemic will spread across the globe over the course of months or over a year, possibly in waves, and will affect communities of all sizes and compositions. In terms of its scope, the impact of a severe pandemic may be more comparable to that of war or a widespread economic crisis than a hurricane, earthquake, or act of terrorism. In addition to coordinating a comprehensive and timely national response, the Federal Government will bear primary responsibility for certain critical functions, including: (1) the support of containment efforts overseas and limitation of the arrival of a pandemic to our shores; (2) guidance related to protective measures that should be taken; (3) modifications to the law and regulations to facilitate the national pandemic response; (4) modifications to monetary policy to mitigate the economic impact of a pandemic on communities and the Nation; (5) procurement and distribution of vaccine and antiviral medications; and (6) the acceleration of research and development of vaccines and therapies during the outbreak.

The center of gravity of the pandemic response, however, will be in communities. The distributed nature of a pandemic, as well as the sheer burden of disease across the Nation over a period of months or longer, means that the Federal Government's support to any particular State, Tribal Nation, or community will be limited in comparison to the aid it mobilizes for disasters such as earthquakes or hurricanes, which strike a more confined geographic area over a shorter period of time. Local communities will have to address the medical and non-medical effects of the pandemic with available resources. This means that it is essential for communities, tribes, States, and regions to have plans in place to support the full spectrum of their needs over the course of weeks or months, and for the Federal Government to provide clear guidance on the manner in which these needs can be met.

Command, Control, and Coordination of the Federal Response during a Pandemic

It is important that the Federal Government have a defined mechanism for coordination of its response. The *National Response Plan* (NRP) is the primary mechanism for coordination of the Federal Government's response to Incidents of National Significance, and will guide the Federal pandemic response. It defines Federal departmental responsibilities for sector-specific responses, and provides the structure and mechanisms for effective coordination among Federal, State, local, and tribal authorities, the private sector, and non-governmental organizations (NGOs). Pursuant to the NRP and Homeland Security Presidential Directive 5 (HSPD-5), the Secretary of Homeland Security is responsible for coordination of Federal operations and resources, establishment of reporting requirements, and conduct of ongoing communications with Federal, State, local, and tribal governments, the private sector, and NGOs.

A pandemic will present unique challenges to the coordination of the Federal response. First and foremost, the types of support that the Federal Government will provide to the Nation are of a different kind and character than those it traditionally provides to communities damaged by natural disasters. Second, although it may occur in discrete waves in any one locale, the national impact of a pandemic could last for many months. Finally, a pandemic is a sustained public health and medical emergency that will have sustained and profound consequences for the operation of critical infrastructure, the mobility of people and freight, and the global economy. Health and medical considerations will affect foreign policy, international trade and travel, domestic disease containment efforts, continuity of operations within the Federal Government, and many other aspects of the Federal response.

Pursuant to the NRP, as the primary agency and coordinator for Emergency Support Function #8 (Public Health and Medical Services), the Secretary of Health and Human Services will lead Federal health and medical response efforts and will be the principal Federal spokesperson for public health issues, coordinating closely with DHS on public messaging pertaining to the pandemic. Pursuant to HSPD-5, as the principal Federal official for domestic incident management, the Secretary of Homeland Security will provide coordination for Federal operations and resources, establish reporting requirements, and conduct ongoing communications with Federal, State, local, and tribal governments, the private sector, and NGOs. In the context of response to a pandemic, the Secretary of Homeland Security will coordinate overall non-medical support and response actions, and ensure necessary support to the Secretary of Health and Human Services' coordination of public health and medical emergency response efforts.

The NRP stipulates mechanisms for coordination of the Federal response, but sustaining these mechanisms for several months to over a year will present unique challenges. Day-to-day situational monitoring will occur through the national operations center, and strategic policy development and coordination on domestic pandemic response issues will be accomplished through an interagency body composed of senior decision-makers from across the government and chaired by the White House. These and other considerations applicable to response to a pandemic will be incorporated in the NRP review process and will inform recommendations on revisions and improvements to the NRP and associated annexes.

Pursuant to the NRP, policy issues that cannot be resolved at the department level will be addressed through the Homeland Security Council/National Security Council (HSC/NSC)-led policy coordination process.

Chapter 4 — International Efforts

Pandemic influenza is a global threat requiring an international response. Given the rapid speed of transmission and the universal susceptibility of human populations, an outbreak of pandemic influenza anywhere poses a risk to populations everywhere. Our international effort to contain and mitigate the effects of an outbreak of pandemic influenza beyond our borders is a central component of our strategy to stop, slow, or limit the spread of infection to the United States.

Substantial obstacles exist to implementing a rapid response to an incipient human pandemic in many nations. The threat of pandemic influenza may not be widely recognized or understood. Many countries do not have sufficient resources or expertise to detect and respond to outbreaks independently, and lack a robust public health and communications infrastructure, pandemic preparedness plans, and proven logistics capability. International mechanisms to support effective global surveillance and response, including coordinated provision of accurate and timely information to the public, are also inadequate.

To address the international dimension of the pandemic threat, the United States will build upon a series of recent actions. The International Partnership on Avian and Pandemic Influenza was launched by the President in September 2005 to heighten awareness of the pandemic threat among governments, to promote the development of national capacity to detect and respond to a pandemic, and to encourage transparency, scientific cooperation, and rapid reporting of outbreaks in birds and humans. We will work through the Partnership, with international health organizations and bilaterally to increase global commitment, cooperation, and capacity to address the threat of avian influenza. At the Beijing Donors Conference in January 2006, the United States committed $334 million to international efforts to prevent and counter the spread of avian and human pandemic influenza, representing approximately one-third of all international grants pledged[1]

Actions to Implement the National Strategy for Pandemic Influenza

The Federal Government will work to increase awareness of the threat by foreign governments and their citizens, and promote the development of national and international capacity to prevent, detect, and limit the spread of animal and human pandemic influenza within and beyond national borders. We will work through bilateral and multilateral channels to assist priority countries, especially those in which highly pathogenic H5N1 avian influenza is endemic or emerging, to develop and exercise plans for an effective response.

Establish Surveillance Capability in Countries at Risk

A country's ability to respond quickly to a human outbreak requires a broad surveillance network to detect cases of influenza-like illnesses in people, coupled with rapid diagnostic and response capabilities. To help address these challenges, the Federal Government and international partners will work together to assist countries at risk to build and improve infrastructure at the central, provincial, and local levels. Building this capability in countries at risk will facilitate monitoring of disease spread and rapid response to contain influenza outbreaks with pandemic potential.

[1] Does not include loans of approximately $1 billion pledged at conference

Expand Capacity for Animal Health Activities and Press for a Strong International Leadership Role

We will press for a strong leadership role for international animal health organizations, particularly the World Organization for Animal Health (OIE) and the United Nations (UN) Food and Agriculture Organization (FAO), to assess the animal health/veterinary services infrastructure of affected, high-risk, and at-risk countries, in order to determine areas of need that must be addressed. We will work to assist the FAO to establish a resident rapid response capability and a network that can be drawn upon to provide technical assistance to address the immediate needs of countries with incipient or advanced outbreaks of avian influenza.

Support a Coordinated Response by the International Community in Support of National Efforts

A series of actions will be necessary to contain an outbreak of a virus with pandemic potential, including rapid characterization of a potential outbreak, immediate and coordinated deployment of rapid reaction teams, deployment of international stocks of antiviral medications and other materiel, and institution of public health measures to limit spread. To be most effective, these measures require international preparation and coordination. The Federal Government will work with the World Health Organization (WHO), the Partnership, and through diplomatic contacts to strengthen these international mechanisms, and we will configure our own Departments and Agencies to deploy personnel and materiel in support of an international response upon the first reports of suspected outbreaks.

We will also press for the establishment of internationally agreed-upon definitions and protocols in support of a containment strategy, including:

- A global epidemiologic standard for triggering an international containment response to a potential pandemic.
- The necessary actions that should be taken by nations in response to a suspected outbreak, including prompt reporting of the outbreak to the WHO Secretariat, and sharing of viral isolates and/or tissue samples.
- The establishment of an international rapid response capability, led by the WHO but with significant contributions of personnel and equipment by the international community, to investigate and respond to the suspected beginning of a pandemic.
- The establishment of national, regional, and international stockpiles of medical and non-medical countermeasures that are pre-positioned for rapid deployment.

Coordinate Public Communication

We recognize that timely, accurate, credible, and coordinated messages will be necessary during a pandemic, and that inconsistent reporting or guidance within and between nations can lead to confusion and a loss of confidence by the public. We will work with the WHO and our international partners to share information as an outbreak proceeds, and to coordinate our response actions as well as the public messaging that accompanies these actions. We will also support the development of targeted and culturally sensitive communications in local languages to help the public in affected countries and countries at risk to understand the threat of influenza with pandemic potential in animals and of human pandemic influenza, the preventive measures that should be taken, and actions necessary in the event of a pandemic.

Assist U.S. Citizens Traveling or Living Abroad

The Federal Government will provide U.S. citizens living and traveling abroad with timely, accurate information on avian influenza, through websites, travel information, and meetings. U.S. Embassies and Consulates will identify local medical capabilities and resources that would be available to U.S. citizens in the event of a "stay in place" response to a pandemic.

Chapter 5 — Transportation and Borders

The containment of an influenza virus with pandemic potential at its origin, whether the outbreak occurs abroad or within the United States, is a critical element of pandemic response efforts. Containment is most effective when approached globally, with all countries striving to achieve common goals. While complete containment might not be successful, a series of containment efforts could slow the spread of a virus to and within the United States, thereby providing valuable time to activate the domestic response.

Our Nation's ports of entry and transportation network are critical elements in our preparation for and response to a potential influenza pandemic. Measures at our borders may provide an opportunity to slow the spread of a pandemic to and within the United States, but are unlikely to prevent it. Moreover, the sheer volume of traffic and the difficulty of developing screening protocols to detect an influenza-like illness pose significant challenges. While we will consider all options to limit the spread of a pandemic virus, we recognize complete border closure would be difficult to enforce, present foreign affairs complications, and have significant negative social and economic consequences.

Measures to limit domestic travel may delay the spread of disease. These restrictions could include a range of options, such as reductions in non-essential travel and, as a last resort, mandatory restrictions. While delaying the spread of the epidemic may provide time for communities to prepare and possibly allow the production and administration of pre-pandemic vaccine and antiviral medications, travel restrictions, per se, are unlikely to reduce the total number of people who become ill or the impact the pandemic will have on any one community. Individual regions would still experience sharp surges in the demand for medical services and the need to meet such demand with local and regional personnel, resources, and capacity. Communities, States, the private sector, and the Federal Government will need to carefully weigh the costs and benefits of transportation measures when developing their response plans, including the effectiveness of an action in slowing the spread of a pandemic, its social and economic consequences, and its operational feasibility.

Border and transportation measures will be most effective in slowing the spread of a pandemic if they are part of a larger comprehensive strategy that incorporates other interventions, such as the adherence to infection control measures (hand hygiene and cough etiquette), social distancing, isolation, vaccination, and treatment with antiviral medications.

Actions to Implement the National Strategy for Pandemic Influenza

Modeling to Inform Transportation and Border Decisions

Models are powerful tools that can be used to inform policy decisions by highlighting the impact of various interventions on the spread of disease. Models can also predict the social and economic ramifications of specific transportation and movement interventions and can inform the assessment of the operational feasibility of these interventions. We will expand our infectious disease modeling

capabilities and ensure that mechanisms are in place to share the findings of these models with State and local authorities and the private sector to inform transportation decisions. We will use these models to develop guidance for State and local authorities on interventions that are likely to limit the spread of a pandemic and on protocols for implementation.

Screening Mechanisms and Travel Restrictions

Our ability to limit the spread of a pandemic, target our public health interventions, and limit the unintended consequences of these actions will be greatly enhanced by the widespread availability of cost-effective screening tools for influenza viruses such as rapid diagnostic tests. We will expand our research and development efforts to bring such tools to market as soon as possible.

The Federal Government's plan for responding to and containing pandemic outbreaks focuses on initial source containment and the use of a layered series of actions to limit spread, including traveler screening for influenza at the point of exit from a source country, en route during air travel, and upon arrival at U.S. airports. In order to ensure that international arrivals undergo proper screening protocols and are subject to isolation and quarantine if appropriate, we are likely to limit the number of airports accepting international flights early in a pandemic. Protocols will be developed to implement these policies for air travelers.

As we have done with air travel, we will establish policies to address movement of people across our land and maritime borders and the role, if any, of domestic movement restrictions. These policies and the protocols to support them will be developed in concert with State, local, and tribal stakeholders, the private sector, and our international partners.

Quarantine and Isolation of Travelers

Current Centers for Disease Control and Prevention (CDC) recommendations for managing air passengers who may be infected with an influenza virus with pandemic potential include isolation of ill persons, quarantine of all non-ill travelers (and crew), and targeted treatment and prophylaxis with antiviral medications. The Federal Government will develop criteria and protocols for isolation and quarantine of travelers early in a pandemic, prior to significant spread of the virus in the United States.

Trade and Movement of Cargo

Excluding live animal and animal product cargo, the risk of influenza transmission by cargo is low. (Inanimate ship-borne cargo poses low risk, and routine surfaces are easily decontaminated.) With appropriate protective measures for workers in specific settings, cargo shipments could continue. The development of prevention measures/protocols that provide protection against the infection of workers in specific settings (e.g., those who handle/inspect cargo) would allow cargo traffic to and from the United States to continue, and thus mitigate the economic impact of the pandemic.

Sustaining the Transportation Infrastructure

Sustaining critical transportation services during a pandemic will be crucial to keep communities functioning and emergency supplies and resources flowing. We will make it clear to State, local, tribal, and private sector entities that planning efforts should assess systemic effects such as supply chain impact, just-in-time delivery, warehousing, and logistics, and should support the development of contingency plans to address lack of critical services and delivery of essential commodities, such as chlorine for water purification, gasoline, food, and medical supplies.

Chapter 6 — Protecting Human Health

Protecting human health is the crux of pandemic preparedness. The components of the Strategy, the elements of this Plan, and the projected allocation of resources to preparedness, surveillance, and response activities all reflect the overarching imperative to reduce the morbidity and mortality caused by a pandemic. In order to achieve this objective, we must leverage all instruments of national power and ensure coordinated action by all segments of government and society, while maintaining the rule of law, and other basic societal functions.

The cardinal determinants of the public health response to a pandemic will be its severity, the prompt implementation of local public health interventions, and the availability and efficacy of vaccine and antiviral medications. Decisions about the prioritization and distribution of medical countermeasures; the content of risk communication campaigns; the application of community infection control and public health containment (social distancing) measures; and whether and when to make adjustments in the way care is delivered are interrelated and all fundamentally determined by the ability of the pandemic virus to cause severe morbidity and mortality and the availability and effectiveness of vaccine and antiviral medications.

While a pandemic may strain hundreds of communities simultaneously, each community will experience the pandemic as a local event. In the best of circumstances, patients and health care resources are not easily redistributed; in a pandemic, conditions would make the sharing of resources and burdens even more difficult. The Federal Government is committed to expanding national stockpiles of both vaccines and antiviral medications and will provide these medical countermeasures as well as other available resources and personnel in support of communities experiencing pandemic influenza, but communities should anticipate that in the event of multiple simultaneous outbreaks, there may be insufficient medical resources or personnel to augment local capabilities. Additionally, manufacturers and suppliers are likely to report inventory shortages and supply chains may be disrupted by the effects of a pandemic on critical personnel. State, local, and tribal entities should thus anticipate that all sources of external aid may be compromised during a pandemic.

The systematic application of disease containment measures can significantly reduce disease transmission rates with concomitant reductions in the intensity and velocity of any pandemics that do occur. The goals of disease containment after a pandemic is underway are to delay the spread of disease and the occurrence of outbreaks in U.S. communities, to decrease the clinical attack rate in affected communities, and to distribute the number of cases that do occur over a longer interval, so as to minimize social and economic disruption and to minimize, so far as possible, hospitalization and death. Decisions as to how and when to implement disease containment measures will be made on a community-by-community basis, with the Federal Government providing technical support and guidance to State and local officials on the efficacy of various social distancing measures, the manner in which they can be implemented, and strategies to mitigate unintended consequences.

Government and public health officials must communicate clearly and continuously with the public now and throughout a pandemic. To maintain public confidence and to enlist the support of individuals and families in disease containment efforts, public officials at all levels of government must provide unambiguous and consistent guidance on what individuals can do to protect themselves, how to care for family members at home, when and where to seek medical care, and how to protect others and minimize the risks of disease transmission. The public will respond favorably to messages that acknowledge its concerns, allay anxiety and uncertainty, and provide clear incentives for desirable behavior. The

information provided by public health officials should therefore be useful, addressing immediate needs, but it should also help private citizens recognize and understand the degree to which their collective actions will shape the course of a pandemic.

Ensuring access to, and timely payment for, covered services during a pandemic will be critical to maintaining a functional health care infrastructure. It may also be necessary to extend certain waivers or develop incident-specific initiatives or coverage to facilitate access to care. Pandemic influenza response activities may exceed the budgetary resources of responding Federal and State government agencies, requiring compensatory legislative action.

Actions to Implement the National Strategy for Pandemic Influenza

Achieving National Goals for Production and Stockpiling of Vaccine and Antiviral Medications

The Federal Government has established two primary vaccine goals: (1) establishment and maintenance of stockpiles of pre-pandemic vaccine adequate to immunize 20 million persons against influenza strains that present a pandemic threat; and (2) expansion of domestic influenza vaccine manufacturing surge capacity for the production of pandemic vaccines for the entire domestic population within 6 months of a pandemic declaration. The Federal Government has also established two primary goals for stockpiling existing antiviral medications: (1) establishment and maintenance of stockpiles adequate to treat 75 million persons, divided between Federal and State stockpiles; and (2) establishment and maintenance of a Federal stockpile of 6 million treatment courses reserved for domestic containment efforts.

To accomplish these goals, we will expand Federal, and create State, stockpiles of influenza countermeasures, as well as expand domestic vaccine manufacturing capacity. We will make substantial new investments in the advanced development of cell-culture-based influenza vaccine candidates, with a goal of establishing the domestic surge vaccine production capacity to meet our pre-pandemic stockpile and post-pandemic vaccine production goals.

Prioritizing and Distributing Limited Supplies of Vaccine and Antiviral Medications

The Federal Government is developing guidelines to assist State, local, and tribal governments and the private sector in defining groups that should receive priority access to existing limited supplies of vaccine and antiviral medications. Priority recommendations will reflect the pandemic response goals of limiting mortality and severe morbidity; maintaining critical infrastructure and societal function; diminishing economic impacts; and maintaining national security. Priorities for vaccine and antiviral drug use will vary based on pandemic severity as well as the vaccine and drug supply.

The establishment of credible distribution plans for our countermeasures is equally important. We will work with State and tribal entities to develop and exercise influenza countermeasure distribution plans, to include the necessary logistical support of such plans, including security provisions.

Deploying Limited Federal Assets and Resources to Support Local Medical Surge

Given that local and regional surge capacity will be the foundation of a community's medical response, we will expand and enhance our guidance to State, local, and tribal entities on the most effective ways to develop and utilize surge assets. Recognizing that the availability of health and medical personnel represents the most significant barrier to the care of large numbers of patients, we will establish a joint strategy for the deployment of Federal medical providers from across the U.S. Government, and will

expand and enhance programs such as the Medical Reserve Corps and the Commissioned Corps of the Public Health Service. We will also ensure that credible plans are in place to rapidly credential, organize, and incorporate volunteer health and medical providers as part of the medical response in areas that are facing workforce shortages.

Establishing Real-Time Clinical Surveillance

In order to manage an outbreak most effectively, it is necessary to establish mechanisms for "real-time" clinical surveillance in domestic acute care settings such as emergency departments, intensive care units, and laboratories to provide local, State, and Federal public health officials with continuous awareness of the profile of illness in communities. We will support local and national efforts to establish this capability by linking hospital and acute care health information systems with local public health departments, and advancing the development of the analytical tools necessary to interpret and act upon these data streams in real time.

Modeling to Inform Decision Making and Public Health Interventions

Given the power of models to inform decision making, we will establish a single interagency hub for infectious disease modeling efforts, and ensure that this effort integrates related modeling efforts (e.g., transportation decisions, border interventions, economic impact). We will also work to ensure that this modeling can be used in real time as information about the characteristics of a pandemic virus and its impact become available. Finally, we will use this capability to inform the development of more advanced guidance for State, local, and tribal entities on social distancing measures that can be employed to limit disease spread through a community.

Chapter 7 — Protecting Animal Health

Influenza viruses that cause severe disease outbreaks in animals, especially birds, are believed to be a likely source for the emergence of a human pandemic influenza virus. The avian influenza type A "H5N1" virus currently found in parts of Asia, Europe, and Africa is of particular concern due to its demonstrated ability to infect both birds and mammals, including humans. Emergence of a pandemic strain could happen outside the United States or within our borders. Once a pandemic strain emerges, infections will predominantly reflect human-to-human transmission, and birds or other animals are unlikely to be a continuing source of significant virus spread in humans.

Irrespective of whether H5N1 leads to a human pandemic, these viruses have the potential to impact the U.S. poultry industry. Some avian influenza viruses cause high mortality in chickens and are referred to as highly pathogenic avian influenza (HPAI) viruses. The economic consequences of an HPAI outbreak in the United States would depend on the size, location, type, and time necessary to eradicate the outbreak. Although such eradication efforts may help to protect human health, they can result in significant costs due to poultry production losses from bird depopulation activities and from quarantine or other movement restrictions placed on birds. But eradication of these viruses also protects the production of U.S. poultry, worth about $29 billion in 2004.

An extensive amount of influenza surveillance is currently conducted in poultry and wild birds in the United States. Commercial poultry operations are monitored for avian influenza through the National Poultry Improvement Plan, and birds moving through the U.S. live bird marketing system are also tested for avian influenza. Wild birds are examined for avian influenza viruses through efforts involving the Federal Government, State wildlife authorities, and universities.

Actions to Implement the National Strategy for Pandemic Influenza

Bolstering Domestic Surveillance

Although substantial surveillance activities are already in place in the United States to detect avian influenza viruses with human pandemic potential in domestic poultry, enhancing surveillance in domestic animals and wildlife will help ensure that reporting of these events will occur as early as possible. Animal populations that are most critical for additional surveillance activities are poultry and wild birds, not only in terms of increased numbers tested but also in the geographic distribution of testing to increase the probability of detection. To fully utilize data collected as part of the national surveillance for influenza viruses with pandemic potential in animal populations, we will establish capabilities for capturing, analyzing, and sharing data.

Expanding the National Veterinary Stockpile

A National Veterinary Stockpile, already established, contains a variety of materiel that would be necessary for a response to an influenza outbreak, including personal protection equipment (PPE), disinfectant, diagnostic reagents, and antiviral medication (for responders). In addition, there are currently 40 million doses of avian influenza vaccine for use in poultry, should an outbreak occur. We will expand this vaccine stockpile to 110 million doses.

Educating Bird Owners

We will expand our multilevel outreach and education campaign called "Biosecurity for the Birds" to provide disease and biosecurity information to poultry producers, especially those with "backyard" production. The program provides guidance to bird owners and producers on preventing introduction of disease and mitigating spread of disease should it be introduced, and encourages producers to report sick birds, thereby increasing surveillance opportunities for avian influenza.

Advancing Our Domestic Outbreak Response Plans

Regardless of where the risk for emergence exists, the Federal Government will be prepared to respond appropriately. The Federal Government has a history of success in working with the poultry industry to eradicate HPAI viruses that have been introduced into U.S. poultry. If an influenza virus with human pandemic potential is introduced into domestic birds or other animals in the United States, despite all international efforts to prevent it, action must be directed to detecting and eradicating the virus as quickly as possible. If it is found in wild birds, we will act to prevent introduction into domestic birds or other susceptible animals.

Enhancing Infrastructure for Animal Health Research and Development

Enhancement of our knowledge of the ecology of influenza viruses, viral evolution, novel influenza strains that emerge in animals, and the determinants of virulence of influenza viruses in animal populations is essential. We will expand our avian influenza research programs to accelerate the development of the tools necessary to detect influenza viruses in the environment, provide immunity to avian populations, and validate disease response strategies.

Chapter 8 — Law Enforcement, Public Safety, and Security

Due to stresses placed upon the health care system and other critical functions, civil disturbances and breakdowns in public order may occur. Likewise, emergency call centers may be overwhelmed with calls for assistance, including requests to transport influenza victims. Local law enforcement agencies may be called upon to enforce movement restrictions or quarantines, thereby diverting resources from traditional law enforcement duties. To add to these challenges, law enforcement and emergency response agencies can also expect to have their uniform and support ranks reduced significantly as a result of the pandemic. Private sector entities responsible for securing critical infrastructure will face similar challenges.

While significant progress has been made since the terrorist attacks of September 11, 2001, in establishing joint investigative protocols and linkages among the key components of public health, emergency management, and law enforcement/emergency response communities, an influenza pandemic will present new challenges, and it is important that all concerned understand their respective roles and the governing legal authorities so that they can coordinate their efforts under a complex set of Federal, State, tribal, and local laws. Joint training and exercises will help prepare for an effective response to a pandemic influenza outbreak.

State and local law enforcement will normally provide the first response pursuant to State and local law. Consistent with State law, the Governor may deploy National Guard as needed to prevent or respond to civil disturbances. When State and local resources prove incapable of an effective response, the Federal Government can assist by providing Federal law enforcement personnel, and by directing the Armed Forces to assist in law enforcement and maintain order when legal prerequisites are met. Logistical and other support assistance can also be provided.

The response to an influenza pandemic could require, if necessary and appropriate, measures such as isolation or quarantine. Isolation is a standard public health practice applied to persons who have a communicable disease. Isolation of pandemic influenza patients prevents transmission of pandemic influenza by separating ill persons from those who have not yet been exposed. Quarantine is a contact management strategy that separates individuals who have been exposed to infection but are not yet ill from others who have not been exposed to the transmissible infection; quarantine may be voluntary or mandatory. The States, which enact quarantine statutes pursuant to their police powers, are primarily responsible for quarantine within their borders. The Federal Government also has statutory authority to order a quarantine to prevent the introduction, transmission, or spread of communicable diseases from foreign countries into the United States or from one State or possession into any other State or possession. Influenza caused by novel or re-emergent influenza viruses that are causing, or have the potential to cause, a pandemic is on the list of specified communicable diseases for which Federal quarantine is available.

Actions to Implement the National Strategy for Pandemic Influenza

Providing Guidance to State and Local Law Enforcement Entities

We will provide State and local law enforcement with the guidance, training, and exercises needed to prepare them to respond during a pandemic influenza outbreak, including how to assist and facilitate containment measures. Similarly, we will provide Governors with specific information concerning the processes for obtaining Federal law enforcement and military assistance.

Supporting Local Law Enforcement Activities

While we rely upon local and State entities to maintain civil order, it is essential that we be prepared to respond in the event of a breakdown of order that cannot be handled at the local or State level. We will ensure that Federal law enforcement agencies and the military have the necessary plans to assist States with law enforcement and related activities in the event that the need arises.

Chapter 9 -— Institutions: Protecting Personnel and Ensuring Continuity of Operations

Unlike many other catastrophic events, an influenza pandemic will not directly affect the physical infrastructure of an organization. While a pandemic will not damage power lines, banks, or computer networks, it has the potential ultimately to threaten all critical infrastructure by its impact on an organization's human resources by removing essential personnel from the workplace for weeks or months. Therefore, it is critical that organizations anticipate the potential impact of an influenza pandemic on personnel and, consequently, the organization's ability to continue essential functions. As part of that planning, organizations will need to ensure that reasonable measures are in place to protect the health of personnel during a pandemic.

The Federal Government recommends that government entities and the private sector plan with the assumption that up to 40 percent of their staff may be absent for periods of about 2 weeks at the height of a pandemic wave, with lower levels of staff absent for a few weeks on either side of the peak. Absenteeism will increase not only because of personal illness or incapacitation but also because employees may be caring for ill family members, under voluntary home quarantine due to an ill household member, minding children dismissed from school, following public health guidance, or simply staying at home out of safety concerns.

Public and private sector entities depend on certain critical infrastructure for their continued operations. Critical infrastructure encompasses those systems and assets that are so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, and national public health or safety. Critical infrastructure protection entails all the activities directed at safeguarding indispensable people, systems (especially communications), and physical infrastructure associated with the operations of those critical infrastructure sectors. Over 85 percent of critical infrastructure is owned and operated by the private sector. Therefore, sustaining the operations of critical infrastructure under conditions of pandemic influenza will depend largely on each individual organization's development and implementation of plans for business continuity under conditions of staffing shortages and to protect the health of their workforces.

Infection control measures are critically important for the protection of personnel. The primary strategies for preventing pandemic influenza are the same as those for seasonal influenza: (1) vaccination; (2) early detection and treatment; and (3) the use of infection control measures to prevent transmission. However, when a pandemic begins, a vaccine may not be widely available, and the supply of antiviral drugs may be limited. The ability to limit transmission and delay the spread of the pandemic will therefore rely primarily on the appropriate and thorough application of infection control measures in health care facilities, the workplace, the community, and for individuals at home.

Simple infection control measures may be effective in reducing the transmission of infection. There are two basic categories of intervention: (1) *transmission interventions,* such as the use of facemasks in health care settings and careful attention to cough etiquette and hand hygiene, which might reduce the

likelihood that contacts with other people lead to disease transmission; and (2) *contact interventions,* such as substituting teleconferences for face-to-face meetings, the use of other social distancing techniques, and the implementation of liberal leave policies for persons with sick family members, all of which eliminate or reduce the likelihood of contact with infected individuals. Interventions will have different costs and benefits, and be more or less appropriate or feasible, in different settings and for different individuals.

General Provisions

This Plan provides initial guidance for Federal and non-Federal entities, including State, local, and tribal entities, businesses, schools and universities, communities, and NGOs, on the development of their institutional plans and provides initial guidance for individuals and families on ways that they can prepare for a pandemic. This guidance will be expanded and refined over time, in consultation with the above stakeholders.

As part of their planning, organizations will need to ensure that reasonable measures are in place to protect the health of Americans during a pandemic, sustain critical infrastructure, and mitigate impact to the economy and the functioning of society. The collective response of all Americans will be crucial in mitigating the health, social, and economic effects of a pandemic (see *Individual, Family, and Community Response to Pandemic Influenza* between Chapters 5 and 6).

The actions directed in this Plan will be implemented in a manner consistent with applicable law and subject to availability of appropriations. Nothing in this Plan alters, or impedes the ability to carry out, existing authorities or responsibilities of Federal department and agency heads to perform their responsibilities under law and consistent with applicable legal authorities and Presidential guidance.

The actions directed in this plan are intended only to improve the internal management of the executive branch of the Federal Government, and they are not intended to, and do not, create any right or benefit, substantive or procedural, enforceable at law or in equity, against the United States, its departments, agencies, or other entities, its officers or employees, or any other person.