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# **Electric Utilities and Pandemic Planning**



# Introduction

Electric companies have a strong track record of preparing for many kinds of emergencies that could impact their ability to generate and/or deliver power. This business continuity planning includes preparing for events that could severely limit the number of employees able to report to work. These “high absenteeism” events typically involve health emergencies, such as a flu pandemic.

The electric power sector has been taking steps to prepare for a possible flu pandemic outbreak for several years. In 2003, world health experts began focusing on H5N1 (the avian flu); however, in March 2009 a new virus was identified: H1N1 (the swine flu). The World Health Organization (WHO) declared H1N1 to be a pandemic in June 2009. While outbreaks in the United States have been localized and limited to date, and the severity generally has been mild, electric companies remain vigilant and are prepared to execute their business continuity plans when necessary.

Planning for a pandemic is unique from other business continuity planning because it requires businesses to prepare to operate with a significantly smaller work force, a threatened supply system, and limited support services for an extended period of time at an unknown date in the future. The business continuity and pandemic plans developed by electric utilities are designed to protect the people working for them and to ensure operations and infrastructures are properly supported. These measures will help to guarantee that utilities can continue providing reliable power throughout an emergency situation.

This booklet is designed to present an overview of the pandemic planning efforts undertaken by the electric utility industry, as well as the federal, state, and local governments; provide an update on current pandemic threats; and offer additional resources for information on pandemic planning. Note: Information in this booklet is current as of September 2009. Please visit [www.who.org](http://www.who.org) for the most current information on the H1N1 flu, and [www.pandemicflu.gov](http://www.pandemicflu.gov) for the most current information on U.S. pandemic planning efforts.



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## WHAT IS A PANDEMIC?

A pandemic is a global disease outbreak. Three conditions must be met for a flu pandemic to start:

- 1) a new influenza virus subtype must emerge for which there is little or no human immunity;
- 2) it must infect humans and cause illness; and
- 3) it must spread easily and sustainably (continuing without interruption) among humans.

## WHAT IS THE HISTORY OF INFLUENZA PANDEMICS IN THE UNITED STATES?

An influenza pandemic is a rare, but recurring event. Three different influenza pandemics occurred in the 20th century. In 1918, the “Spanish flu” (H1N1 virus) hit the United States and became the most devastating flu pandemic in recent history. The Spanish flu killed more than 500,000 people in the United States and 20 million to 50 million people worldwide.

In 1957, the “Asian flu” (H2N2 virus), first identified in China, caused approximately 70,000 deaths in the United States during the 1957-1958 flu season. Because this strain has not circulated in humans since 1968, no one under 40 years of age is immune to H2N2.

In 1968, the “Hong Kong flu” (H3N2 virus), first detected in Hong Kong, caused nearly 34,000 deaths in the United States during the 1968-1969 flu season. H3N2 viruses still circulate today.

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## WHAT ARE THE CURRENT PANDEMIC THREATS?

### ■ H1N1 (THE SWINE FLU)

The H1N1 virus (originally called the “swine” flu) first appeared in Mexico in March 2009, followed by the first confirmed case in the United States on April 15, 2009. Human-to-human transmission of the virus was quickly determined, and the United States declared a public health emergency on April 26, 2009. Less than two months later, all 50 states, the District of Columbia, Puerto Rico, and the U.S. Virgin Islands had reported cases of the H1N1 virus.

On June 11, 2009, the World Health Organization (WHO) declared that the H1N1 virus had reached a pandemic level based on the number of cases worldwide. As of August 2009, WHO confirmed that cases of H1N1 had been reported in more than 170 countries and territories worldwide, with nearly 1,800 confirmed deaths.<sup>1</sup>

Countries around the world are experiencing the pandemic in different stages. While the United States continues to report more H1N1 cases than any other country, most people infected with the virus have recovered without requiring medical treatment. Health experts predict that the current H1N1 outbreak in the Northern Hemisphere may worsen with the start of the regular flu season in the fall, which is similar to what occurred in most countries in the Southern Hemisphere during their flu/winter season. In the United States, high absenteeism for businesses, schools, and government is expected.

A vaccine for H1N1 currently is under development; however, it is not expected to be available until October 2009, at the earliest. Clinical trials are taking place in several countries, and results from these trials will indicate whether one or two doses of the vaccine (per person) are

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<sup>1</sup> World Health Organization, “Pandemic (H1N1) 2009 – update 62,” August 21, 2009 (<http://www.who.int/csr/disease/swineflu/en/index.html>).

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necessary. However, even after a vaccine for H1N1 is available, quantities will be limited. The U.S. federal government has outlined its priority recipient list; however, the distribution process is still being finalized at the state level.

## ■ H5N1 (THE AVIAN FLU)

According to the U.S. Centers for Disease Control and Prevention (CDC), avian influenza (also called the “bird flu”) is an infection caused by influenza A viruses that occur naturally among birds. Wild birds worldwide carry the viruses in their intestines, but usually do not get sick from them. However, avian influenza is contagious among birds and can make some domesticated birds—including chickens, ducks, and turkeys—very sick and kill them.

The risk from avian influenza is low for most people because the avian influenza viruses usually do not infect humans. However, confirmed cases of human infection from several subtypes of avian influenza infection have been reported since 1997, according to the CDC.

In particular, outbreaks of one strain of avian influenza known as “H5N1” occurred among poultry in eight countries in Asia (Cambodia, China, Indonesia, Japan, Laos, South Korea, Thailand, and Vietnam) during late 2003 and early 2004. At that time, more than 100 million birds in the affected countries either died from the disease or were killed in order to try to control the outbreaks, according to the WHO. By March 2004, the outbreak was reported to be under control. Beginning in June 2004, however, new outbreaks of influenza H5N1 among poultry and wild birds were reported in Asia. Since that time, the virus has spread geographically.

Reports of H5N1 infection in wild birds in Europe began in mid-2005. In early 2006, influenza A H5N1 infection in wild birds and poultry was reported in Africa and the Near East. As of August 2009, human cases of H5N1 infection have been reported in Azerbaijan, Bangladesh,

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Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, Lao People's Democratic Republic, Myanmar, Nigeria, Pakistan, Thailand, Turkey, and Vietnam.<sup>2</sup>

Currently, the H5N1 virus meets the first two conditions of a pandemic: it is a new virus for humans (H5N1 viruses have never circulated widely among people), and it has infected more than 400 humans, with deaths occurring in more than half of these cases.<sup>3</sup>

However, the third condition, the establishment of efficient and sustained human-to-human transmission of the virus, has not occurred. For this to take place, the H5N1 virus would need to improve its transmissibility among humans. This could occur either by “reassortment” or adaptive mutation. Reassortment occurs when genetic material is exchanged between human and avian viruses during co-infection (infection with both viruses at the same time) of a human or another mammal, especially pigs. The result could be a fully transmissible pandemic virus—that is, a virus that can spread easily and directly between humans. A more gradual process is adaptive mutation, where the capability of a virus to bind to human cells increases during infections of humans.

## WHY IS PANDEMIC PLANNING IMPORTANT?

While most nations, governments, and businesses have business continuity plans to help them respond to natural disasters, technological failures, or other disruptions, planning for a flu pandemic requires a different set of continuity assumptions. Unlike natural disasters—such as a hurricane or earthquake—which are confined to certain geographic areas and defined periods of time, a flu pandemic will be dispersed geographically and could

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<sup>2</sup> World Health Organization, “Cumulative Number of Confirmed Human Cases of Avian Influenza A/ (H5N1) Reported to WHO,” August 11, 2009. For the most current information about avian influenza and cumulative case numbers, see the World Health Organization’s Avian Influenza Web site, at [www.who.int/csr/disease/avian\\_influenza/en/index.html](http://www.who.int/csr/disease/avian_influenza/en/index.html).

<sup>3</sup> Ibid.

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arrive in waves that last several months at a time. Due to the widespread nature of a pandemic, resources cannot be shifted geographically to help an area in need, as with other emergencies.

Developing a comprehensive pandemic response plan is essential for all organizations in the United States. However, critical infrastructure industries—such as the healthcare and electric utility industries—carry an additional responsibility to provide the services that will help our nation’s first-responders during a pandemic.

## WHAT IS THE FEDERAL GOVERNMENT DOING TO RESPOND TO A FLU PANDEMIC?

The federal government is engaged in both domestic and international pandemic planning efforts. The number one priority of the government is to save lives by slowing the spread of the virus, decreasing illness and death, and “buying” more time to prepare for and deal with the pandemic. To do so, the government is focused on the following strategies:

- Provide antiviral treatment and isolation for people with the illness;
- Quarantine individuals exposed to the virus;
- Implement community containment measures;
- Practice social distancing;
- Provide a vaccine when it becomes available; and
- Empower state and local governments to make decisions.

The federal government has divided its planning responsibilities into two categories: healthcare and public health, and critical/essential infrastructure. The U.S. Department of Health and Human Services (HHS) is responsible for healthcare planning, while the U.S. Department

of Homeland Security (DHS) is charged with coordinating plans to protect our nation’s critical infrastructure. These two agencies meet with state and local governments, businesses, and other stakeholders to promote

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cooperation and communication throughout the planning process. HHS and DHS have developed informative Web sites and printed materials to help inform the public as well.

In addition, Congress has provided pandemic preparedness funding to help the government invest in international health surveillance and containment efforts; medical stockpiles; the domestic capacity to produce emergency supplies of pandemic vaccine and antiviral medications; and preparedness at all levels of government.

The federal government also is working with other countries to develop regional approaches to prevent and control pandemic outbreaks. HHS has distributed materials to help countries with their pandemic planning, including pandemic influenza vaccine strategies and capacity building.

To learn more about the federal government's preparations for a pandemic, visit <http://www.pandemicflu.gov/plan/federal/index.html>.

## **WHAT ARE STATE AND LOCAL GOVERNMENTS DOING TO RESPOND TO A FLU PANDEMIC?**

Planning efforts at the state and local levels are critical to mitigate the potential impact of a flu pandemic. State and local governments will be on the “front lines” of a pandemic outbreak and must be prepared to respond immediately. States are updating their pandemic plans to respond to new guidance from government sources. The federal government is providing state and local governments with emergency response training, planning guidance, and other assistance to prepare for a pandemic. In turn, state and local governments are working with healthcare providers, businesses, schools, and community leaders to coordinate their pandemic plans.

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To learn more about state and local planning efforts, including individual state pandemic plans, visit <http://www.pandemicflu.gov/whereyoulive/index.html>.

## HOW COULD A PANDEMIC AFFECT THE UNITED STATES?

HHS and DHS provide the following planning assumptions about how a pandemic could affect the United States:

- After sustained human-to-human transmission has occurred in multiple sites overseas, it could take two to four weeks for the pandemic virus to hit the United States.
- The spread of the pandemic virus across communities within the United States will be rapid but not predictable.
- There will not be enough anti-viral medications or vaccines available for the entire population. There may be none in the early stages and then limited quantities for select populations.
- HHS and/or local governments may recommend social distancing, quarantine, school closures, and/or other measures to minimize the spread of the pandemic virus. Depending on the severity of the pandemic, government health officials may have to implement dramatic measures, including shutting down certain businesses that involve high levels of interaction with the public. Health officials also may have to restrict travel and cancel public events.
- HHS anticipates the potential of two to three waves of community outbreaks over the course of a year, with each wave lasting 12 to 16 weeks nationally and six to eight weeks locally.
- One in three workers, or more, may be unable to report to work for two to four weeks due to illness at some point during the course of a six- to eight-week community outbreak.
- Additional workers may stay home in order to care for sick family members, children that are not in school due to school closures,

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and/or because they or family members are among the “worried well” who may stay home to avoid exposure to the pandemic virus. In all, up to 40 percent of the work force may be absent.

## WHICH CRITICAL INDUSTRIES AND KEY RESOURCES MUST BE ABLE TO OPERATE DURING A FLU PANDEMIC?

To maintain essential levels of service and ensure that basic goods are available during a pandemic, the federal government identified 18 critical infrastructure and key resource (CIKR) sectors.<sup>4</sup> These sectors should coordinate pandemic planning with all appropriate private and public entities:

- agriculture and food
- banking and finance
- chemical and hazardous materials
- commercial facilities
- communications
- critical manufacturing
- dams
- defense industrial base
- emergency services
- energy (includes electricity, natural gas, and oil industries)
- government facilities
- healthcare and public health
- information technology
- national monuments and icons
- nuclear power plants
- postal and shipping
- transportation systems
- water

As with preparation for the Year 2000 (Y2K) technology problem, federal and state government agencies will consider possible regulatory relief for critical industries during a pandemic. By working together, critical industries, key resource sectors, and government entities will be able to ensure that our nation can deliver the essential goods and services needed during a pandemic.

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<sup>4</sup>U.S. Department of Homeland Security, “Critical Infrastructure and Key Resources,” see [http://www.dhs.gov/files/programs/gc\\_1189168948944.shtm](http://www.dhs.gov/files/programs/gc_1189168948944.shtm).

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## SHOULD COMPANIES STOCKPILE ANTIVIRALS AND PERSONAL PROTECTION EQUIPMENT?

As part of their comprehensive pandemic planning, some public and private sector employers have stockpiled or otherwise arranged for influenza antiviral drugs to be available for their employees during a pandemic. To guide these efforts, HHS released guidance to businesses in 2008,<sup>5</sup> as well as updated interim guidance on the use of antiviral agents for treatment and prevention of the 2009 H1N1 influenza virus.<sup>6</sup>

Personal protection equipment (PPE), such as facemasks and respirators, often are used to help prevent the spread of infection from one person to another. While there is limited information on the effectiveness of PPE for decreasing the risk of influenza infection in communities, many companies, including electric utilities, have purchased masks, gloves, and other PPE, as part of their pandemic planning.

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<sup>5</sup> U.S. Department of Health and Human Services, *Considerations for Antiviral Drug Stockpiling by Employers in Preparation for an Influenza Pandemic*, 2008 ([www.flu.gov/vaccine/antiviral\\_employers.html](http://www.flu.gov/vaccine/antiviral_employers.html)).

<sup>6</sup> U.S. Department of Health and Human Services, *Interim Guidance on Antiviral Recommendations for Patients with Novel Influenza A (H1N1) Virus Infection and Their Close Contacts*, May 6, 2009 ([www.cdc.gov/h1n1flu/recommendations.htm](http://www.cdc.gov/h1n1flu/recommendations.htm)).

# Electric Utility Planning Efforts

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# Electric Utility Planning Efforts

## HOW WOULD A FLU PANDEMIC AFFECT ELECTRIC UTILITIES?

Electric utilities will feel the effects of a pandemic much like any other business. It is predicted that a large percentage of a company's employees (up to 40 percent) will be out sick or will stay home to care for sick family members. Likewise, the vendors and suppliers that electric utilities depend upon will experience similar personnel shortages.

To ensure that power plants have the materials and personnel necessary to produce electricity, utilities are developing plans to ensure that supply needs are met and that critical positions are covered.

In some cases, power plant operators and other key personnel may be sequestered onsite to provide greater assurance that they remain healthy and are able to run the plant. At the same time, utility lineworkers and call center representatives must be available to restore service and to answer questions. Depending on the severity of a pandemic, it may be necessary to utilize contractors and other utilities to help maintain service. However, because of the widespread nature of a pandemic, utilities will not be able to depend on the traditional mutual assistance programs that help companies restore service after natural disasters and weather events. Therefore, utilities are taking extra planning steps now to ensure that they can continue to provide a reliable supply of electricity during a pandemic.

## WHAT STEPS ARE ELECTRIC UTILITIES TAKING TO PREPARE FOR A FLU PANDEMIC?

Electric utilities are focusing on the following action items to prepare for, and respond to, a flu pandemic:

### ■ MONITOR THE SITUATION

Electric utilities are monitoring the various threats and pandemic situations at the global, national, state, and local levels. Specific monitoring methods vary among companies, and include contacting local public health officials and receiving information from the WHO, CDC, and

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other federal government sources. Electric utilities also are monitoring their own normal absenteeism rates to quickly determine any unusual increases.

## ■ COMMUNICATE YOUR PLANS

Electric utilities are focused on communicating with employees and their families; suppliers; customers; public health officials; interdependent critical infrastructure; and federal, state, and local agencies. Companies are communicating with their employees through mailings, specialized Web sites, and company hotlines.

Electric utilities also recognize the importance of discussing their pandemic response plans with other critical infrastructures—such as communications, nuclear, natural gas, transportation, and emergency services—as well as their contractors and suppliers to ensure that these interdependencies are not compromised during a pandemic.

Utilities are engaged in a new form of “proactive mutual assistance”—sharing pandemic preparedness plans and strategies with each other before a potential outbreak—to help ensure that all electric utilities have developed plans, policies, and procedures to maintain operational continuity.

## ■ CONTROL THE INFECTION

The top priority of electric utilities is to protect the health and safety of the people who work for them, as well as their families. Electric utilities understand that people will be most concerned about their health and the welfare of their families during a pandemic. Electric utilities are focused on making sure that their employees:

- follow good personal hygiene and flu preventive measures;
- have accurate information about the pandemic;
- feel confident that their workplace is a healthy environment; and
- know when to stay home and when to come to work.

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Depending on the severity of the pandemic, electric utilities may also implement social distancing strategies to reduce the spread of the virus. Social distancing practices in the workplace include spacing workers farther apart, canceling large business meetings, canceling non-essential travel, and implementing work-from-home policies.

By promoting a healthy work force, electric utilities will be able to better ensure that electrical services are maintained within their service territories during a pandemic.

## ■ REVIEW COMPANY POLICIES

Electric utilities are reviewing various policies within their organizations that may be affected by a pandemic, as well as identifying additional policies that may be needed to provide guidance to their employees during a pandemic. These policies cover the following areas: human resources, absenteeism, returning to work, telecommuting, travelling, antiviral/vaccine policy, and others.

## ■ MAINTAIN OPERATIONS

Electric utilities' pandemic preparedness plans are designed to ensure that operations and infrastructure are properly supported so that they can continue to provide reliable power throughout an emergency situation. To do so, electric utilities are identifying those functions critical to their continued operations—for example, control room monitoring, power plant operations, and system switching—and the people needed to fill those positions.

Utilities also are identifying functions of the organization that can be suspended—for example, meter reading, training, and non-emergency maintenance. For those employees who may be able to work from home, companies are ensuring that they have the necessary technology support in place.

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## ■ RESPOND

In the event that electric utilities need to implement their pandemic plans, several response actions will occur. Utilities are developing a framework for crisis communications, to ensure that they are able to keep their many constituencies—employees, customers, suppliers, interdependent infrastructure, and government agencies—appropriately informed during a pandemic. Electric utilities are testing their notification systems (manual and automated), developing absentee tracking systems, and performing tabletop exercises and various drills around the country to identify any areas that need additional support.

To help utilities determine how best to respond to the current H1N1 pandemic outbreak, the North American Electric Reliability Corporation (NERC) released a “Framework for Deciding Pandemic Response Actions Based on Severity.”<sup>7</sup> This framework is intended to help utilities determine when to implement various stages of their response plans.

## **ARE ELECTRIC UTILITIES COORDINATING THEIR PANDEMIC PLANS WITH GOVERNMENT AGENCIES AND OTHER KEY INDUSTRIES?**

**YES.**

For planning efforts to be most effective, businesses—both large and small—must share their plans with all key players in the community to ensure plans and actions are coordinated. In addition, businesses must develop mutual support alliances within the community and region, as well as with their business partners and competitors.

Electric utilities are planning closely with other segments of the electric-ity sector (generators, transmission operators, distribution providers) and with other critical infrastructures—such as communications, nuclear,

<sup>7</sup> North American Electric Reliability Corporation, “Background: Industry Advisory, Responding to a Pandemic Outbreak,” August 12, 2009. Document can be found at: [www.nerc.com/fileUploads/File/Events%20Analysis/A-2009-08-12-01\\_Background.pdf](http://www.nerc.com/fileUploads/File/Events%20Analysis/A-2009-08-12-01_Background.pdf)

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natural gas, transportation, and emergency services—as well as contractors and suppliers to ensure that these interdependencies are not compromised during a pandemic.

As recognized leaders in the field of emergency preparedness, many electric utilities are actively involved in their local community efforts to prepare for a pandemic. The world-class emergency planning and response skills that electric utilities demonstrate in storm restoration have positioned utilities as leaders in their communities—a role that they take very seriously.

The electric utility industry will continue to work with federal government agencies, including the Department of Energy, DHS, Federal Emergency Management Agency, and the Department of Transportation, as well as state and local authorities, to identify opportunities to improve the effectiveness of the industry's response to disasters and other emergencies.

## **WHAT WILL HAPPEN IF WEATHER EVENTS CAUSE POWER OUTAGES DURING A PANDEMIC?**

Safe restoration of electric power is one of many aspects of utility operations that requires workers with specific skills and training. Given that the duration of a pandemic outbreak is expected to extend for as long as two months, or perhaps longer, it is possible—and in some parts of the country perhaps even likely—that weather-related or other types of outages could occur during the same time period that a community is affected by a pandemic.

During non-health emergencies, such as severe storms, electric utilities often are able to speed restoration of electric power by bringing in additional skilled workers from utilities and contractors outside the area affected by an emergency. This practice is known as mutual assistance. However, during a pandemic, mutual assistance either will not be available or will be severely limited.

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Another factor that electric utilities are taking into account in their planning is the availability of equipment and materials for restoration. Utilities depend on many types of businesses to supply equipment and materials used in maintaining and restoring their infrastructure. A pandemic will affect all types of businesses, including manufacturing and transportation industries.

In general, restoration of electric service following an outage during a pandemic should be expected to take longer than it would during similar events that are not occurring concurrent with a pandemic outbreak.

The shortages of both trained workers and materials that are expected to occur during a pandemic outbreak will adversely affect the ability of electric utilities to safely restore power. Of course, the exact impact will depend on the severity of the event that caused the outage as well as the severity of the pandemic outbreak.



# Preparing Yourself and Your Family

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# Preparing Yourself and Your Family

## WHAT CAN I DO TO PREPARE MYSELF AND MY FAMILY?

Every family should have an emergency plan to respond to any number of emergency situations (natural disaster, terrorist attack, etc.).

Part of this planning should include preparing for a possible flu pandemic. For example, during a pandemic, you may not be able to leave your house for an extended period of time. Therefore, you should have a two-week supply of water and food on hand.

If a flu pandemic occurs, government health officials will issue information and warnings to help individuals avoid becoming ill. You should pay close attention to guidance provided by local and state health departments and the CDC, <http://www.cdc.gov>. The WHO, <http://www.who.org>, is another good source of information.

For information on how to develop a family emergency plan, visit Ready America at <http://www.ready.gov/america/index.html>.

For information on how to prepare for your family for a pandemic, visit PandemicFlu.gov at <http://www.pandemicflu.gov/plan/individual/index.html>.

## WHAT IS THE BEST WAY TO PREVENT THE SPREAD OF INFLUENZA?

The flu is caused by viruses that infect the nose, throat, and lungs, and is generally spread from person to person when an infected person coughs or sneezes. A vaccination against the pandemic flu—when it is available—will be the best way to prevent the disease. However, the following simple, common-sense precautions recommended by the CDC can help prevent the spread of all types of influenza.

# Preparing Yourself and Your Family

- **AVOID CLOSE CONTACT WITH PEOPLE WHO ARE SICK.** If you are sick, keep your distance from others to protect them from getting sick, too.
- **STAY HOME WHEN YOU'RE SICK OR HAVE FLU SYMPTOMS.** Get plenty of rest and check with a health care provider as needed.
- **COVER YOUR MOUTH AND NOSE WITH A TISSUE WHEN COUGHING OR SNEEZING.** If you don't have a tissue, cough or sneeze into your sleeve, not your hands. It may prevent those around you from getting sick.
- **CLEAN YOUR HANDS.** Washing your hands often will help protect you against germs. When soap and water are not available, use alcohol-based disposable hand wipes or gel sanitizers.
- **AVOID TOUCHING YOUR EYES, NOSE, OR MOUTH.** Germs are often spread when a person touches something that is contaminated with germs and then touches his or her eyes, nose, or mouth.
- **PRACTICE OTHER GOOD HEALTH HABITS.** Get plenty of sleep, be physically active, manage stress, drink plenty of fluids, eat nutritious foods, and avoid smoking, which may increase the risk of serious consequences if you do contract the flu.

## WHAT ARE THE RISKS OF CONTRACTING THE H1N1 (SWINE FLU) VIRUS?

The H1N1 virus is a contagious flu that is spreading from human to human, similar to the way that seasonal flu spreads—through coughing or sneezing, or by touching something with the flu virus on it, and then touching your mouth or nose. Individuals who are infected with the H1N1 virus can infect others beginning one day before getting sick to five to seven days after. This period may be longer in some people, including children and individuals with weakened immune systems.

# Preparing Yourself and Your Family

According to the CDC, about 70 percent of the people who have been hospitalized with the H1N1 virus were considered to be in the “high risk” category of developing seasonal flu-related complications. This includes pregnant women and individuals who have diabetes, heart disease, asthma, and kidney disease.

## HOW IS INFECTION WITH THE HINI VIRUS TREATED?

Cases of H1N1 have ranged from mild to severe. H1N1 is a respiratory illness, with symptoms including fever, cough, sore throat, runny or stuffy nose, body aches, headache, chills, and fatigue. Some people infected with the virus also reported diarrhea and vomiting. While severe illness and death have occurred, most individuals who have become ill with the H1N1 virus have recovered without the need for medical treatment, according to the CDC.

A vaccine for H1N1 currently is in development; however, it is not expected to be available until October 2009, at the earliest. Clinical trials are taking place in several countries, and results from these trials will indicate whether one or two doses of the vaccine (per person) are necessary. However, even after a vaccine for H1N1 is available, the federal government has indicated there will not be enough antiviral medications or vaccines available for the entire population. The federal government has outlined its recipient priority list; however, the distribution process is still being finalized at the state level.

Two antiviral medications—oseltamivir or zanamivir—are recommended by the CDC for the treatment and/or prevention of the H1N1 flu virus. These drugs work to keep the flu virus from reproducing in your body. With the current H1N1 pandemic, priority for these medications is given to hospitalized individuals with severe H1N1 illness or those people who are at high risk for developing serious flu-related complications.

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## WHAT ARE THE RISKS TO HUMANS FROM THE CURRENT H5N1 (AVIAN FLU) OUTBREAK?

Currently, the H5N1 virus does not usually infect people, but more than 400 human cases have been reported.<sup>8</sup> Most of these cases have occurred from direct or close contact with infected poultry or contaminated surfaces. So far, spread of the H5N1 virus from person to person has been rare. Nonetheless, because all influenza viruses have the ability to change, scientists are concerned that the H5N1 virus one day could be able to affect humans and spread easily from one person to another.

## HOW IS INFECTION WITH THE H5N1 VIRUS IN HUMANS TREATED?

The CDC and WHO recommend the antiviral medication oseltamivir to treat avian influenza in humans. While most H5N1 viruses worldwide have responded to oseltamivir, some H5N1 viruses do appear to be resistant to the drug. Ongoing monitoring and studies will demonstrate its current and ongoing effectiveness.<sup>9</sup>

## IS THERE A VACCINE TO PROTECT HUMANS FROM THE H5N1 VIRUS?

Yes. In April 2007, the U.S. Food and Drug Administration (FDA) approved the first vaccine to prevent human infection of one strain of the H5N1 virus. However, the vaccine is not commercially available to the public. The federal government has purchased the vaccine and it is part of the country's U.S. National Strategic Stockpile. This will ensure that if it is ever needed, those who are designated as priority recipients will have the

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<sup>8</sup> World Health Organization, "H5N1 avian influenza: Timeline of major events," July 27, 2009 ([www.who.int/csr/disease/avian\\_influenza/Timeline090727.pdf](http://www.who.int/csr/disease/avian_influenza/Timeline090727.pdf)).

<sup>9</sup> U.S. Centers for Disease Control and Prevention, "Avian Influenza A Virus Infections of Humans," ([www.cdc.gov/flu/avian/gen-info/avian-flu-humans.htm](http://www.cdc.gov/flu/avian/gen-info/avian-flu-humans.htm)).

# Preparing Yourself and Your Family

vaccine available to them. Other H5N1 vaccines are being developed to protect against different H5N1 strains.

## WHERE CAN I GET MORE INFORMATION?

To get the most current information on the H1N1 pandemic outbreak visit:

- **THE U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION:**  
<http://www.cdc.gov/h1n1flu/>
- **THE WORLD HEALTH ORGANIZATION:**  
<http://www.who.int/csr/disease/swineflu/en/index.html>

To get the most current information on the H5N1 flu virus visit:

- **THE U.S. CENTERS FOR DISEASE CONTROL AND PREVENTION:**  
<http://www.cdc.gov/flu/avian/outbreaks/current.htm>
- **THE WORLD HEALTH ORGANIZATION:**  
[http://www.who.int/csr/disease/avian\\_influenza/en/index.html](http://www.who.int/csr/disease/avian_influenza/en/index.html)





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