



PANDEMIC INFLUENZA U • P • D • A • T • E



Public Health Prepares

February 16, 2006

Fast Facts

This week, CDC has nine of its experts deployed internationally for urgent avian influenza outbreak assignments. The WHO confirmed avian influenza in wild swans in Italy, Iran, Bulgaria, Greece, and Slovenia, and outbreaks in domestic poultry in Nigeria and Azerbaijan.

The severity of the next pandemic cannot be predicted, but modeling studies suggest that the impact of a pandemic on the United States could be substantial.

Between 15% and 35% of the U.S. population could be affected by an influenza pandemic, and the economic impact could range between \$71.3 and \$166.5 billion.

Because of the expected size of an influenza pandemic, it is important to plan preparedness activities that will promote a prompt and effective public health response.

If you are asked . . .

"I know we don't have a pandemic yet, but what changes are needed for H5N1 or another influenza virus to cause a pandemic?"

Three conditions must be met for a pandemic to start:

- 1) a new influenza virus subtype must emerge
- 2) it must infect humans and causes serious illness, and
- 3) it must spread easily and be sustained (continue without interruption) among humans.

The H5N1 virus in Asia, Europe, the Near East, and Africa meets the first two conditions: it is a new virus for humans (H5N1 viruses have never circulated widely among people), and it has infected more than 160 humans, killing over half of them.

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 have to change in such a way that it could spread more easily among humans. This could occur either by "reassortment" or by 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 pig. The result could be a fully transmissible pandemic virus—that is, a new virus that can spread easily and directly to humans. A more gradual process is adaptive mutation, where the capability of a virus to bind to human cells increases during infections of humans. Health officials at CDC and other organizations are on high alert for any indication that reassortment or an adaptive mutation has occurred with the H5N1 virus. For more information, visit www.pandemicflu.gov.

Public health prepares . . .

New laboratory test detects human infections with avian influenza A/H5 (Asian lineage) viruses

CDC developed a new laboratory test to diagnose H5 (Asian lineage) strains of influenza in patients suspected to be infected with the virus. The laboratory test was approved for this purpose Feb. 3, 2006, by the FDA. Information obtained from this test will be used to track cases of illness with this strain of virus. Testing for this virus is indicated when a patient has symptoms of severe respiratory illness and a risk of exposure (e.g., direct contact with sick, dead or infected poultry in a country with outbreaks of influenza H5N1 among poultry). The product is called the Influenza A/H5 (Asian lineage) Virus Real-time RT-PCR Primer and Probe Set. The test provides preliminary results on suspected H5 influenza samples within four hours once a sample arrives at the lab and testing begins. Previous testing technology would require at least two to three days for results. If the presence of the H5 strain is identified, then further testing is conducted to identify the neuraminidase subtype (e.g., H5N1).

Since December 2003, more than 160 human cases of avian flu caused by the H5N1 strain of influenza have been reported in Thailand, China, Vietnam, Cambodia, Indonesia, Turkey and Iraq. More than half of the people infected with the H5N1 virus have died. Nearly all of these cases are believed to have been caused by exposure to infected poultry. The concern is that H5N1 will evolve into a virus capable of human-to-human transmission and lead to an influenza pandemic.

"Preparing for a possible flu pandemic is a top priority for our nation, and FDA acted quickly to evaluate and expedite CDC's request for approval of this test," Acting FDA Commissioner Dr. Andrew von Eschenbach said. "Using flexible regulatory authorities, FDA was able to prioritize this expedited approval based on the clear critical need without compromising the quality or integrity of the FDA review process."

A flu pandemic occurs when a new influenza virus emerges for which people have little or no immunity and for which there is no vaccine. In an influenza pandemic, the disease spreads easily from person to person in a sustained manner, causes serious illness, and can sweep across the country and around the world in a very short time. It is difficult to predict when the next influenza pandemic will occur or how severe it will be.

This test will be distributed to Laboratory Response Network (LRN)-designated laboratories to enhance early detection and surveillance activities as well as increase laboratory response capacity associated with a potential pandemic. Domestically the LRN is a system of about 140 labs in all 50 states. LRN labs have special experience and training in molecular testing methods, special bio-safety facilities and containment procedures as well as communication networks connected to public health programs across the country. The testing kits will be distributed by CDC beginning next week. CDC has also shared the test technology with the World Health Organization and its collaborating centers around the world.

"The use of this test by laboratories that are part of the LRN, in conjunction with other laboratory testing and clinical observations, may enable earlier detection of influenza cases caused by this specific virus and allow public health agencies to investigate sources of infection and more quickly respond with control and prevention activities," said CDC Director Julie Gerberding, M.D., M.P.H.

CDC recommends that testing for influenza A/H5 (Asian lineage) should be considered on a case-by-case basis in consultation with local or state health departments. If a clinician suspects a patient may be infected with an avian influenza virus, they should contact their state or local health department.

CDC's full recommendations are at <http://www.cdc.gov/mmwr/preview/mmwrhtml/mm55e203a1.htm>.

PANDEMIC INFLUENZA UPDATE

Update on H5N1: Global Activity (Humans and Birds)

Outbreak: Confirmed human avian influenza case in Iraq (January 30, 2006)

According to the World Health Organization (WHO), a WHO collaborating laboratory in London, UK, has confirmed avian influenza A infection (H5N1) in the 15-year-old girl from northern Iraq. The patient, who died on January 17, had a history of exposure to birds. This is the first confirmed human case of H5N1 in Iraq. The girl's 39-year-old uncle, who cared for her during her illness, died of a severe respiratory disease on January 27. Another suspected case of H5N1 has also been reported in a 54-year-old woman from the same area. The source of exposure for the latter two cases is still being investigated, and the results of their laboratory tests are pending. Recent poultry deaths have been reported in the area where the patients resided, although H5N1 infection has not been confirmed in birds in Iraq. An international team is being dispatched to Iraq to assist with the epidemiologic investigation.

HUMANS: From December 2003—February 13, 2006: 169 confirmed cases in humans and 91 deaths. They occurred in the following nations: Vietnam 93 cases and 42 death; Thailand 22 cases and 14 deaths; Indonesia 25 cases and 18 deaths; China 12 cases and 8 deaths; Cambodia 4 cases and 4 deaths; Turkey 12 cases and 4 deaths; and Iraq 1 case and 1 death.

BIRDS: Nations with confirmed H5N1 in poultry/birds since 2003: Azerbaijan, Bulgaria, Cambodia, China, Croatia, Greece, Hong Kong (SARPRC), Italy, Indonesia, Iran, Japan, Kazakhstan Laos, Malaysia, Mongolia, Nigeria, Romania, Russia, Slovenia, South Korea, Thailand, Turkey, Ukraine, and Vietnam.

For the most recent reports, please go to link: <http://www.who.int/csr/outbreaknetwork/en/> or <http://www.cdc.gov/mmwr/weekvol.html>.

CDC recommends . . .

The collaboration of Faith-Based and Community Organizations with public health agencies will be

essential in protecting the public's health and safety if and when an influenza pandemic occurs. CDC developed a checklist that provides guidance for religious organizations (churches, synagogues, mosques, temples, etc.), social service agencies that are faith-based, and community organizations in developing and improving influenza pandemic response and preparedness plans.

The new checklist identifies specific steps faith-based and community organizations can take now to prepare for a pandemic. The checklist includes these suggested actions:

- Plan for the impact of a pandemic on your organization and its mission
- Communicate with and educate your staff, members, and persons in the communities that you serve
- Set up policies to follow during a pandemic, including evaluating activities and religious practices, if applicable, to identify those that may facilitate virus spread from person to person
- Coordinate with external organizations and help your community

For more information, visit:

<http://www.pandemicflu.gov/plan/pdf/faithbasedCommunityChecklist.pdf>

Where to find out more . . .

A source for information on pandemic influenza is the CDC's Hotline at: 1-800-CDC-INFO (1-800-232-4636). This line is available in English and Spanish, 24 hours a day, 7 days a week. TTY: 1-888-232-6348.

For more information about influenza preparedness, visit www.pandemicflu.gov.

Pandemic Influenza Update: Reader's Feedback

The twice-monthly Pandemic Influenza Update is prepared by CDC's Priority Communication System. Information in this newsletter is time sensitive and evolving. Readers are welcome to comment by email to: panupdate@cdc.gov

PANDEMIC INFLUENZA UPDATE

The top illustration reflects a mutation of an avian influenza virus to make it more easily transmitted from person to person.

The bottom illustration reflects reassortment which occurs when genetic material is exchanged between human and avian influenza virus during co-infection (infection with both viruses at the same time) of a human or pig.

