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**Questions and Answers
Avian Influenza and Pandemic Influenza**

Modified from CDC Questions and Answers About Avian Influenza (Bird Flu) and Avian Influenza A (H5N1) Virus (www.cdc.gov/flu/avian/gen-info/ga.htm), accessed 8/9/06; and questions submitted from HCA Animal Care Services, Environmental Health, and Epidemiology.

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Avian Influenza (in general) and Avian Influenza A H5N1

What is avian influenza (bird flu)? *CDC*

Avian influenza is an infection caused by avian (bird) influenza (flu) viruses. These flu viruses occur naturally among birds. Wild birds worldwide carry the viruses in their intestines (guts), but usually do not get sick from them. However, avian influenza can spread easily among birds and can make some domesticated birds, including chickens, ducks, and turkeys, very sick and kill them. There are many different avian influenza virus subtypes; the one in the news recently is subtype H5N1.

Outbreaks of avian influenza 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. By March 2004, the outbreak was reported to be under control.

Since late June 2004, however, new outbreaks of influenza H5N1 among poultry and wild birds have been reported in countries in Africa, Asia, Europe, and the Near East.

As of 8/9/06, human cases of influenza A (H5N1) infection have been reported in Azerbaijan, Cambodia, China, Djibouti, Egypt, Indonesia, Iraq, Thailand, Turkey, and Vietnam. For the most current information about avian influenza and cumulative case numbers, see the World Health Organization website at www.who.int/csr/disease/avian_influenza/en/.

What does low pathogenic/highly pathogenic (“low path”/ “high path”) mean? *CDC*

Infection with avian influenza viruses in domestic poultry causes two main forms of disease that are distinguished by low and high extremes in the ability to cause disease. The “low pathogenic”

forms, sometimes called “low path”, may go undetected and usually cause only mild symptoms (such as ruffled feathers and a drop in egg production). However, the “highly pathogenic” forms, sometimes called “high path”, spread more rapidly through flocks of poultry. The high path forms may cause disease that affects multiple internal organs and have a mortality rate that can reach 90-100%, often within 48 hours. The H5N1 being found in Africa, Asia, Europe and the Near East is a high path form.

How does avian influenza spread among birds? CDC

Infected birds shed influenza virus in their saliva, nasal secretions, and feces. Susceptible birds become infected when they have contact with contaminated excretions or with surfaces that are contaminated with excretions or secretions. Domesticated birds (e.g. chickens, ducks, and turkeys) may become infected with avian influenza virus through direct contact with infected waterfowl or other infected poultry or through contact with surfaces (such as dirt or cages) or materials (such as water or feed) that have been contaminated with the virus.

How long will it be until avian influenza is found in the U.S.? EPI

Avian influenza viruses, usually low path forms (*see previous explanation of [high path/low path](#)*), are found periodically in the U.S. High path forms have been found in poultry in the U.S. in 1924, 1983, and 2004. No human illnesses resulted from those outbreaks. Federal experts expect high path H5N1 will be in U.S. birds shortly, possibly later this year. However, the detection of an infected bird in the U.S. does not indicate that a pandemic (*see under [Pandemic](#)*) or even an infected human in the U.S. will follow. Few people in the U.S. have the same extensive contact with poultry and their droppings that the H5N1 cases in Asia and Africa had. The poultry industry in the U.S. is very regulated, has less contact with migratory birds, and farmers are compensated for any poultry that may need to be killed to control an outbreak.

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Human Infection and Avian Influenza

Do avian influenza viruses infect humans? CDC

Avian (bird) flu viruses do not usually infect humans, but more than 200 confirmed cases of human infection with the bird flu virus H5N1 have occurred since 1997. The World Health Organization (WHO) maintains [situation updates](http://www.who.int/csr/disease/avian_influenza/en/) [www.who.int/csr/disease/avian_influenza/en/] and [cumulative reports of human cases](http://www.who.int/csr/disease/avian_influenza/country/en/) [www.who.int/csr/disease/avian_influenza/country/en/] of avian influenza A (H5N1). Please visit these and previous WHO situation updates and cumulative reports for additional information. In addition, the Orange County Public Health website has updated lists of countries involved with bird and human cases [www.ochealthinfo.com/epi/af/].

How do people become infected with avian influenza viruses? CDC

Most cases of avian influenza infection in humans have resulted from direct or close contact with infected poultry (e.g., domesticated chicken, ducks, and turkeys) or surfaces contaminated with secretions and excretions from infected birds. During an outbreak of avian influenza among poultry, there is a possible risk to people who have direct or close contact with infected birds or with surfaces that have been contaminated with secretions and excretions from infected birds.

Most of the human H5N1 cases thus far have occurred from direct or close contact with infected poultry or contaminated surfaces. So far, spread of H5N1 virus from person to person has been rare. Nonetheless, because all influenza viruses have the ability to change, scientists are concerned that H5N1 virus one day could be able to infect humans and spread easily from one person to another. Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population.

What are the symptoms of avian influenza in humans and how is it different than seasonal influenza? *CDC*

Symptoms of avian influenza in humans have ranged from typical human influenza-like symptoms (fever, cough, sore throat, and muscle aches) to eye infections, pneumonia, severe respiratory diseases (such as acute respiratory distress syndrome), and other severe and life-threatening complications. The symptoms of avian influenza may depend on which specific virus subtype and strain caused the infection.

Of the few bird flu viruses that have been able to infect humans, H5N1 virus has caused the largest number of reported cases of severe disease and death in humans. In the current situation in Asia and Africa more than half of the people infected with the virus have died. Most cases have occurred in previously healthy children and young adults. However, it is possible that the only cases currently being reported are those in the most severely ill people and that the full range of illness caused by the H5N1 virus has not yet been defined.

Unlike seasonal influenza, in which infection usually causes only mild respiratory symptoms in most people, H5N1 infection may follow an unusually aggressive clinical course, with rapid deterioration and high fatality. Primary viral pneumonia and multi-organ failure have been common among people who have become ill with H5N1 influenza.

How is avian influenza detected in humans? *CDC*

A laboratory test is needed to confirm avian influenza in humans. The specimen is usually taken from the nose and/or throat.

What are the implications of avian influenza to human health? *CDC*

Two main risks for human health from avian influenza are:

- 1) the risk of direct infection when the virus passes from the infected bird to humans, sometimes resulting in severe disease; and
- 2) the risk that the virus, if given enough opportunities, will change into a form that is highly infectious for humans and spreads easily from person to person.

If H5N1 virus were to gain the capacity to spread easily from person to person, an [influenza pandemic](#) (worldwide outbreak of disease) could begin. No one can predict when a pandemic might occur. However, experts from around the world are watching the H5N1 situation in Africa, Asia, and Europe very closely and are preparing for the possibility that the virus may begin to spread more easily from person to person. For more information about pandemics, see the [Pandemic](#) section or www.pandemicflu.gov/.

How is avian influenza in humans treated? *CDC*

Studies done in laboratories suggest that the prescription medicines approved for human influenza viruses should work in treating avian influenza infection in humans. However, influenza viruses can become resistant to these drugs, so these medications may not always work. Additional studies are needed to determine the effectiveness of these medicines. Most H5N1 viruses that have caused human illness and death appear to be resistant to amantadine and rimantadine, two antiviral medications commonly used for treatment of patients with influenza. Two other antiviral medications, oseltamivir (Tamiflu) and zanamivir (Relenza), would probably work to treat influenza caused by H5N1 virus, but additional studies are needed to demonstrate their current and ongoing effectiveness.

Does the current seasonal influenza vaccine protect me from avian influenza? *CDC*

No. Influenza vaccine for seasonal influenza does not provide protection against avian influenza.

Is there a vaccine to protect humans from H5N1 virus? *CDC*

There currently is no commercially available vaccine to protect humans against the H5N1 virus that is being detected in Africa, Asia and Europe. However, vaccine development efforts are taking place. Research studies to test a vaccine that will protect humans against H5N1 virus began in April 2005, and a series of clinical trials is under way. For more information about the H5N1 vaccine development process, visit the [National Institutes of Health website](#).

What do I do if I develop flu-like symptoms? *EPI*

There is currently no or very limited person-to-person transmission of the H5N1 avian influenza virus in the affected countries; therefore, the risk of having avian influenza without travel to an H5N1-affected area and having close contact with poultry or a confirmed H5N1 human case is low. If you develop fever and runny nose, sore throat, and/or cough, stay home, wash your hands, cover your mouth with a tissue when you cough or sneeze. People at risk for complications of influenza should consult their doctor; these people include young children, people with chronic medical conditions, pregnant women, and the elderly. If you develop difficulty breathing, shortness of breath, prolonged vomiting, severe weakness or lightheadedness, you should consult your physician.

If you have traveled to an H5N1-affected area and develop fever and cough, sore throat, or trouble breathing, contact your physician and provide information about your symptoms, where you traveled and if you had direct contact with poultry or with sick people. Physicians treating individuals with respiratory symptoms that have traveled to areas with avian influenza A (H5N1) cases in the 10 days prior to symptom onset should contact Public Health immediately at (714) 834-8180 for appropriate testing.

Is it safe to travel out of the country? Are there travel restrictions to areas with known H5N1 outbreaks? *CDC*

CDC does not recommend any travel restrictions to affected countries at this time. However, CDC currently advises that travelers to countries with known outbreaks of H5N1 influenza avoid poultry farms, contact with animals in live food markets, and any surfaces that appear to be contaminated with feces from poultry or other animals. Wash your hands frequently with soap

and water or use alcohol-based hand gels for hand cleaning when soap and water are not available. Make sure that all poultry products are thoroughly cooked before eating. For an up-to-date list of countries affected by H5N1, see www.ochcahealthinfo.com/epi/af/. For more information, visit the CDC [Travelers' Health](http://www.cdc.gov/travel/other/avian_influenza_se_asia_2005.htm) website [www.cdc.gov/travel/other/avian_influenza_se_asia_2005.htm]. You should always consult the Travelers' Health website or a travel clinic prior to traveling out of the country to make sure you have had the necessary vaccinations and know the appropriate precautions to take.

After returning, monitor your health for 10 days. If you develop a fever plus cough, sore throat or trouble breathing, contact your physician and provide information about your symptoms, where you traveled and if you had direct contact with poultry or with sick people. Physicians treating individuals with respiratory symptoms that have traveled to areas with avian influenza A (H5N1) cases in the 10 days prior to symptom onset should contact Public Health immediately at (714) 834-8180 for appropriate testing.

Should I wear a surgical mask to prevent exposure to avian influenza? *CDC*

Currently, wearing a mask is not recommended for routine use (e.g., in public) for preventing influenza exposure. In the United States, disposable surgical and procedure masks have been widely used in health-care settings to prevent exposure to respiratory infections, but the masks have not been used commonly in community settings, such as schools, businesses, and public gatherings.

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Dead Birds, Bird Testing, and Avian Influenza

What should I do if I find a sick or dead bird? *EPI*

Do not touch birds or any wildlife with your bare hands. We encourage reporting of dead birds as dead bird reports are an important part of our county and state surveillance systems. Not all birds will be picked up and you may be asked to dispose of the bird yourself (*see below*).

- For poultry or pet birds, call the Avian Health Program (part of the California Department of Food and Agriculture) at 1-800-491-1899.
- For sick or injured wild birds, call the
 - California Department of Fish and Game [858-467-4201 or 888-DFG-CALTIP (888-334-2258)],
 - local wildlife rehabilitation organizations, OR
 - your local animal control agency . For cities served by Orange County Animal Care Services, call 714-935-6848.
- For four (4) or fewer dead wild birds, call Orange County Vector Control District at (714) 971-2421, Ext. 117, e-mail: wNV@ocvcd.org or call the State WNV hotline at (877) WNV-BIRD [877-968-2473]. They will decide if the bird is appropriate for West Nile Virus testing.
- For more than five (5) dead wild birds, contact the California Department of Fish and Game Regional Office at (858) 467-4201 or their toll-free number (888) DFG-CALTIP [888-334-2258].

To dispose of a dead bird, the current recommendations are to use gloves or place an inverted plastic bag over the dead bird and then pull the bag over the bird to pick it up. You could also use a shovel or other equipment to pick it up and place it in the trash. Dead birds can currently be disposed of in regular trash. These recommendations may change after high path H5N1 is detected in North America. Be sure to wash your hands after disposing of the bird.

Are birds/animals in the County being tested for avian influenza? *EPI*

Testing of poultry is currently coordinated by the California Department of Food and Agriculture. The California Department of Fish & Game is developing the state plan for testing of wild birds, based on the national (U.S. Fish and Wildlife Service) and Pacific Flyway strategies for wild bird surveillance. Sampling sources may include live waterfowl, shorebirds, hunter-harvested birds, environmental sampling (feces and water), and dead birds that may be part of large die-offs. Currently there is no plan to test individual dead birds for avian influenza. Dead birds continue to be tested for West Nile Virus infection through Orange County Vector Control and we encourage the reporting of dead birds for this purpose (*see above*).

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Contact with Live Birds, Bird Products, and Avian Influenza

What precautions can be taken to reduce the risk for infection from wild birds in the United States? *CDC*

As a general rule, the public should observe wildlife, including wild birds, from a distance. This protects you from possible exposure to pathogens and minimizes disturbance to the animal. Avoid touching wildlife. If there is contact with wildlife, do not rub eyes, eat, drink, or smoke before washing hands with soap and water. See [What should I do if I find a sick or dead bird?](#) for more information.

We have a small flock of chickens. Is it safe to keep them? *CDC*

Yes. In the United States there is no need at present to remove a flock of chickens because of concerns regarding avian influenza. The U.S. Department of Agriculture (USDA) monitors potential infection of poultry and poultry products by avian influenza viruses and other infectious disease agents. Infected birds shed bird flu virus in their saliva, nasal secretions and feces. Most of the human cases of H5N1 overseas resulted from direct or close contact with infected poultry or surfaces contaminated with secretions or excretions from infected birds. In the United States, we have not yet had any of this type of bird flu virus in humans or birds.

As always, good hygiene should be practiced to avoid contamination and illnesses. Establish mechanisms to separate wildlife from domestic poultry such as using enclosures and nets. Exclude access of cats, dogs, rats and other vermin to where the poultry are raised. Report sick or dead poultry to the CDFA Avian Health Program at 1-800-491-1899. Do not cull or eat sick poultry before consulting with the Avian Health Program.

Do exotic birds pose a danger for avian influenza? *EH*

United States is prohibiting the importation of birds from countries where the virus is detected (*see below*). The pet birds are examined and are allowed to undergo home quarantine. Smuggling

and illegal entry of birds from other countries are controlled by the Department of Homeland Security's Customs and Border Protection.

Is there a risk in importing pet birds or handling feather products that come from countries experiencing outbreaks of avian influenza A (H5N1)? *CDC*

The U.S. government has determined that there IS a risk to importing pet birds and/or handling feather products from countries experiencing outbreaks of H5N1 influenza.

There is currently a ban on the importation of birds and bird products from H5N1-affected countries in Africa, Asia, and Europe. The [regulation](#) states that no person may import or attempt to import any birds (Class Aves), whether dead or alive, or any products derived from birds (including hatching eggs), from countries affected by H5N1. For an up-to-date list of countries involved with the embargo, see www.cdc.gov/flu/avian/outbreaks/embargo.htm. This prohibition does not apply to any person who imports or attempts to import products derived from birds if, as determined by federal officials, such products have been properly processed to render them noninfectious so that they pose no risk of transmitting or carrying H5N1 and which comply with the U.S. Department of Agriculture (USDA) requirements. Therefore, feathers from these countries are banned unless they have been processed to render them noninfectious. Additional information about the import ban is available on the USDA website.

Can a person become infected with avian influenza A (H5N1) virus by cleaning a bird feeder? *CDC*

At the present time, high path H5N1 has not been found in birds in the United States. Therefore, the risk of becoming infected with H5N1 virus from bird feeders is low. Generally, perching birds (Passeriformes) are the predominate type of birds at feeders. While there are documented cases of H5N1 causing death in some Passeriformes (e.g., house sparrow, Eurasian tree-sparrow, house finch), in both free-ranging and experimental settings, most of the wild birds that are traditionally associated with avian influenza viruses are waterfowl and shore birds.

What precautions can hunters take to reduce the risk for infection when hunting birds in the United States? *CDC*

Hunters should follow routine precautions when handling game, including wild birds. The National Wildlife Health Center recommends that hunters:

- Do not handle or eat sick game.
- Wear rubber or disposable latex gloves while handling and cleaning game
- Wash hands with soap and water (or with alcohol-based hand products if the hands are not visibly soiled)
- Thoroughly clean knives, equipment and surfaces that come in contact with game.
- Do not eat, drink, or smoke while handling animals.
- Cook all game thoroughly (to internal temperature 165°F).

Is there a risk of exposure to the virus from areas with a lot of birds or bird droppings? *EH*

Avian flu viruses can be in the secretions and droppings of infected birds. However, at the present time, high path H5N1 has not been found in birds in the United States. Most cases of avian flu virus infection in humans have occurred in countries where poultry flocks are kept in unconfined free roaming areas and there is close contact between the humans and poultry. The

main route of human infection has been the direct contact with infected poultry, contaminated surfaces, and contaminated feces.

Can I get the avian flu from swimming in a pool or pond (or other recreational water) with wild ducks/birds in it? *EH*

It is possible that droppings from avian influenza-infected birds could contaminate a body of water. However, at the present time, high path H5N1 has not been found in birds in the United States. In addition, the dilutional effect of a body of water would make the risk for avian influenza virus infection from swimming in a pool or pond very low currently. However, there is not much information available about transmission of H5N1 through water and future research is needed.

Public pools are required to maintain a minimum of 1.0 free chlorine residual at all times. This eliminates growth of most pathogenic organisms. In addition, pools can be shock treated by super chlorination. There is not much data available about the effect of chlorine on avian influenza virus survival in the environment. Once high path H5N1 has been detected in birds in the U.S., additional recommendations regarding disinfection of pools or surrounding decks may be needed.

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Food (Poultry and Egg) Safety and Avian Influenza

Is there a risk for becoming infected with avian influenza by eating poultry? *CDC & EH*

There is no evidence that properly cooked poultry or eggs can be a source of infection for avian influenza viruses. This virus is sensitive to heat. Fully cooked poultry with an internal temperature of 165°F will kill the virus if present. All parts of poultry should be fully cooked with no pink parts. Use a thermometer to make sure the correct internal temperature is reached. For more information about avian influenza and food safety issues, visit the [US Food and Drug Administration Center for Food Safety and Applied Nutrition Q&A on Avian Influenza](#) [www.cfsan.fda.gov/~dms/avfluqa.html] or the [World Health Organization website](#) [www.who.int/foodsafety/micro/avian/en/].

The U.S. government carefully controls domestic and imported food products, and in 2004 issued a ban on importation of poultry from countries affected by avian influenza viruses, including the H5N1 strain. This ban still is in place. For more information, see Embargo of Birds, www.cdc.gov/flu/avian/outbreaks/embargo.htm. Nearly all poultry consumed in the U.S. is produced domestically and is raised in covered facilities with controlled access. The Food and Drug Administration (FDA) and the United States Department of Agriculture (USDA) are the agencies that regulate poultry and poultry products produced for the United States markets. Regulation of these facilities is conducted on a routine basis through inspection and good manufacturing practice regulations.

Are the birds they sell at ethnic markets safe to eat? *EH*

Properly cooked poultry and poultry products do not pose a risk for avian influenza virus (*see above*). The Centers for Disease Control has banned the importation of all birds from countries

that may pose a risk of introducing avian flu virus (*see above*). FDA also is working in conjunction with USDA to monitor and oversee the safety of poultry and poultry products.

Is it safe to eat organic natural cage free poultry? *EH*

Similar to the large poultry enterprises, the organic natural cage free industry is aware of avian influenza and cooperative with the authorities. The United States Department of Agriculture (USDA) is working with these smaller industries to educate and enhance awareness. Properly cooked poultry and poultry products do not pose a risk for avian influenza virus (*see above*).

Do eggs carry the avian influenza viruses? Is it safer to consume pasteurized eggs? *EH*

Hens that are infected with avian influenza virus or are ill usually stop producing eggs. However the first batch of laid eggs from infected poultry could be contaminated with the virus. Contamination could be found on the eggshell and the inside of the egg. Fully cooking the egg and egg products to 165°F will destroy the virus. The egg yolks should not be runny. Eating food that contains raw eggs such as batter, filling, dough, beverages, dressings, and sauces should be avoided to prevent other infections as well such as salmonellosis. The procedure used by the industry in pasteurization of liquid egg will inactivate avian influenza virus. Pasteurization or fully cooking eggs will also significantly reduce transmission of other infections such as salmonellosis.

Is the eating of baluts (fertilized eggs) dangerous?

If birds are infected with bird flu, the virus can be found inside and on the surface of eggs laid by these infected birds. Therefore, balut (fertilized egg) from an infected bird can contain the virus. Balut is consumed raw or steamed. The best method to prevent any foodborne infection is to steam balut to at least 165°F.

Does handling raw chicken, chicken juices, and blood increase my chance of becoming ill with avian influenza? *EH*

The poultry industry in the U.S. is highly regulated and tested ([see previous questions about poultry](#)). If poultry in the U.S. were infected with avian influenza virus, there would be a greater risk of exposure to bird flu virus through handling and slaughter of live infected poultry. However, as with other pathogens causing foodborne illness, avian flu virus infection can be prevented by following safe food handling practices:

- Wash hands with warm water and soap after handling raw poultry and eggs.
- Clean and sanitize equipment, food contact surfaces, and utensils that come in contact with raw poultry.
- Do not eat, drink, or smoke while handling raw poultry.
- If using gloves, change gloves and wash hands periodically.

I have heard that some ethnic restaurants and markets slaughter chickens and ducks within their facility. Is this practice allowed? *EH*

Slaughtering of poultry should take place in approved facilities. Retail restaurants and markets are not approved for slaughtering. Slaughtering of poultry or any other animal in a retail

restaurant or market is prohibited. If poultry in the U.S. were infected with avian influenza virus, slaughtering and de-feathering of contaminated poultry could pose an opportunity for exposure.

Sometimes markets display or stock raw chicken next to other raw meats or deli meats.

Can this cause contamination of other foods? *EH*

Raw meat products may be contaminated with pathogens that are destroyed by different cooking requirements. Juices from raw poultry and poultry products should never be allowed to touch or mix with items eaten raw or that are already cooked. Storing of raw meat products next to cooked or ready to eat food can cause contamination of other foods. Therefore, law prohibits storing raw meat products next to cooked or ready to eat products.

Markets may use the same grinder to grind different type of meats. Can this cause transfer of the bird flu virus? *EH*

Meat markets with only one grinder should scrape, clean, and sanitize all parts of the grinder each time there is an exchange in grinding process between the different types of animal product. Larger meat markets have designated grinders for each type of animal products.

I heard that some chickens are vaccinated for the avian flu virus. Is there anything on the labeling that can notify consumers? *EH*

Vaccination of poultry is recommended as a supplementary measure to control the highly pathogenic form of the bird flu virus in affected countries and may be used in the U.S. when outbreaks occur. Poultry are routinely vaccinated against various diseases and it is not a requirement to include a list of vaccines on the labeling.

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Other Animals and Avian Influenza

What animals can be infected with avian influenza A (H5N1) viruses? *CDC*

In addition to humans and birds, we know that pigs, tigers, leopards, ferrets, and household cats can be infected with avian influenza A (H5N1) viruses. In addition, in early March 2006, Germany reported H5N1 infection in a stone marten (a weasel-like mammal). It's possible that other mammals may be susceptible to avian influenza A (H5N1) infection as well.

Can pets get this from birds and give it to their owners? *ACS*

Cats and possibly dogs and other pets can get avian flu most likely from eating birds. There has been no documented transmission of avian influenza from animals other than birds to humans.

Do any animals in the U.S. have it yet? *ACS*

There has not been any documented high path H5N1 in any animals, including birds in the U.S.

Are any animals being tested for avian influenza in the U.S.? *ACS*

Select birds are being tested following a national strategy of sampling for avian influenza. For more information, see [Are birds/animals in the County being tested for avian influenza?](#) There is currently no recommendation for the testing of other animals.

How will I know if my animal is sick with the disease? What are the symptoms in animals? ACS

Cats with avian influenza can have breathing problems or nasal discharge. Not much is known about the symptoms of avian influenza in other animals.

What do I do if I think my pet has it? ACS

If your pet is sick or has died, consult your veterinarian.

Can cats be infected with avian influenza viruses? CDC

While household cats are not usually susceptible to influenza type-A infection, studies have shown that they can be infected with avian influenza A (H5N1) viruses and can spread the virus to other cats.

How do cats become infected with avian influenza A (H5N1) viruses? CDC

All of the cases of influenza A (H5N1) infection in household cats reported to date have been associated with H5N1 outbreaks among domestic poultry or wild birds and are thought to have occurred by the cat eating raw infected meat.

How commonly have cats been infected with avian influenza A (H5N1) viruses? CDC

During the avian influenza A (H5N1) outbreak that occurred from 2003 to 2004 in Asia, there were only several unofficial reports of fatal infections in domestic cats. Studies carried out in the Netherlands and published in 2004 showed that housecats could be infected with avian influenza A (H5N1) and could spread the virus to other housecats. In these experiments, the cats became sick after direct inoculation of virus isolated from a fatal human case, and following the feeding of infected raw chicken. In February 2006, Germany reported that a domestic cat had died from influenza A (H5N1) infection. That cat lived in the northern island of Ruegen, where more than 100 wild birds are believed to have died of the disease. The cat probably got sick by eating an infected bird.

What about infection in large cats, like tigers? CDC

Large cats kept in captivity have been diagnosed with avian influenza as well. In December 2003, two tigers and two leopards that were fed fresh chicken carcasses from a local slaughterhouse died at a zoo in Thailand. An investigation identified avian influenza A (H5N1) in tissue samples. In February and March 2004, the virus was detected in a clouded leopard and white tiger, respectively, both of which died in a zoo near Bangkok. In October 2004, 147 of 441 captive tigers in a zoo in Thailand died or were euthanatized as a result of infection after being fed fresh chicken carcasses. The cats are thought to have gotten sick from eating infected raw meat. Results of a subsequent investigation suggested that at least some tiger-to-tiger transmission occurred in that facility.

Can cats spread H5N1 to people? CDC

There is no evidence to date that cats can spread H5N1 to humans. No cases of avian influenza in humans have been linked to exposure to sick cats, and no outbreaks among populations of cats have been reported. All of the influenza A (H5N1) infections in cats reported to date appear to have been associated with outbreaks in domestic or wild birds and acquired through ingestion of raw infected meat.

What is the current risk that a cat will become infected with influenza A (H5N1) virus in the United States? *CDC*

High path H5N1 virus has not been identified in the United States, so at this time there is no known risk of a U.S. cat becoming infected with this virus.

If avian influenza A (H5N1) is identified in the United States, how can I protect my cat? *CDC*

As long as there is no H5N1 influenza in the United States, at this time there is no risk of a U.S. cat becoming infected with this disease. In Europe, however, where H5N1 has been reported in wild birds, poultry, several cats, and a stone marten (a member of the weasel family), the [European Center for Disease Prevention and Control](#) has issued preliminary recommendations for cat owners living in H5N1-affected areas. These include keeping household cats indoors to prevent exposure to potentially infected birds.

Where can I find out more information about avian influenza infection in cats? *CDC*

For more information about avian influenza in cats, visit www.fao.org/ag/againfo/subjects/en/health/diseases-cards/avian_cats.html.

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Pandemic Influenza and Planning

What is a pandemic? *EPI*

A pandemic is a worldwide outbreak affecting large numbers of people.

What changes are needed for H5N1 or another avian influenza virus to cause a pandemic?

CDC

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 sustainedly (continue without interruption) among humans. The H5N1 virus in Asia and Europe 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 100 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 need to improve its transmissibility among humans. This could occur by changes in the virus, 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 pig. The result could be a fully transmissible pandemic virus, that is, a 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.

What is the County of Orange Health Care Agency (OCHCA) doing to prepare for a possible influenza pandemic? *EPI*

OCHCA adopted a pandemic influenza response plan in 2004 and is currently in the process of revising this plan. The plan focuses on surveillance; early detection and laboratory confirmation of human infections with avian influenza; education of health care and other community partners; expanding capabilities for mass vaccination; surge capacity for healthcare facilities and agencies; strategies for limiting transmission of pandemic influenza; enhancing communication methods; increasing awareness in the community; and collaborating with public and private partners to ensure continuity of businesses and society infrastructure. OCHCA has engaged community partners and is planning a series of exercises to test and refine the plan and provide training.

What should I do to prepare for a pandemic? *EPI*

Individuals and families prepare for an emergency, whether it be a natural disaster or a pandemic, by stocking up on food, water, and emergency supplies and making communications plans. For a checklist, see the Health and Human Services website www.pandemicflu.gov.

Consider how you, your family, and your business or education may be affected by a pandemic during which social disruption may be widespread, schools may be closed, up to 40% of the workforce may be affected at one time, and public transportation may be disrupted. Checklists for pandemic planning for businesses, schools, child care, community and faith-based organizations, and other groups are available on the HHS website www.pandemicflu.gov.

Review simple ways to prevent getting sick with your family and workplace. These include: washing your hands, staying home when you are sick, avoiding close contact with sick people, covering your mouth and nose when sneezing or coughing, and avoiding touching your eyes, nose and mouth. Maintain your health and get an annual flu shot. If you are 65 years of age or older, or have a chronic illness, you may be eligible for a pneumonia shot also.

What is CDC doing to prepare for a possible H5N1 influenza pandemic? *CDC*

In February 2004, CDC provided U.S. public health departments with recommendations for enhanced surveillance (detection) of H5N1 influenza in the country. Follow-up messages were sent to the health departments in August 2004 and February 2005; both alerts reminded public health departments about recommendations for detecting (domestic surveillance), diagnosing, and preventing the spread of H5N1 virus. The alerts also recommended measures for laboratory testing for H5N1 virus.

CDC is taking part in a number of pandemic prevention and preparedness activities, including the following:

- Providing leadership to the National Pandemic Influenza Preparedness and Response Task Force, created in May 2005 by the Secretary of the U.S. Department of Health and Human Services.
- Working with the Association of Public Health Laboratories on training workshops for state laboratories on the use of special laboratory (molecular) techniques to identify H5 viruses.
- Working with the Council of State and Territorial Epidemiologists and others to help states with their pandemic planning efforts.
- Working with other agencies, such as the Department of Defense and the Veterans Administration, on antiviral stockpile issues.

- Working with the World Health Organization (WHO) to investigate influenza H5N1 among people (e.g., in Vietnam) and to provide help in laboratory diagnostics and training to local authorities.
- Performing laboratory testing of H5N1 viruses.
- Starting a \$5.5 million initiative to improve influenza surveillance in Asia.
- Holding or taking part in training sessions to improve local capacities to conduct surveillance for possible human cases of H5N1 and to detect influenza A H5 viruses by using laboratory techniques.
- Developing and distributing reagent kits to detect the currently circulating influenza A H5N1 viruses.

CDC also is working closely with WHO and the National Institutes of Health on safety testing of vaccine candidates and development of additional vaccine virus seed candidates for influenza A (H5N1) and other subtypes of influenza A viruses.

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