



Pandemic Flu

Information and Recommendations

A pandemic is a global disease outbreak. An influenza pandemic occurs when a new influenza A virus emerges for which there is little or no immunity in the human population, begins to cause serious illness and then spreads easily person-to-person worldwide.

Historically, the 20th century saw 3 pandemics of influenza:

- 1918 influenza pandemic caused at least 500,000 U.S. deaths and up to 40 million deaths worldwide
- 1957 influenza pandemic caused at least 70,000 U.S. deaths and 1-2 million deaths worldwide
- 1968 influenza pandemic caused about 34,000 U.S. deaths and 700,000 deaths worldwide

Characteristics and challenges of a pandemic

1. Rapid Worldwide Spread

- When a pandemic influenza virus emerges, its global spread is considered inevitable.
- Preparedness activities should assume that the entire world population would be susceptible.
- Countries might, through measures such as border closures and travel restrictions, delay arrival of the virus, but cannot stop it.

2. Health Care Systems Overloaded

- Most people have little or no immunity to a pandemic virus. Infection and illness rates soar. A substantial percentage of the world's population will require some form of medical care.
- Nations unlikely to have the staff, facilities, equipment and hospital beds needed to cope with large numbers of people who suddenly fall ill.

- Death rates are high, largely determined by four factors: the number of people who become infected, the virulence of the virus, the underlying characteristics and vulnerability of affected populations and the effectiveness of preventive measures.
- Past pandemics have spread globally in two and sometimes three waves.

3. **Medical Supplies Inadequate**

- The need for vaccine is likely to outstrip supply.
- The need for antiviral drugs is also likely to be inadequate early in a pandemic.
- A pandemic can create a shortage of hospital beds, ventilators and other supplies. Surge capacity at non-traditional sites such as schools may be created to cope with demand
- Difficult decisions will need to be made regarding who gets antiviral drugs and vaccines.

4. **Economic and Social Disruption**

- Travel bans, closings of schools and businesses and cancellations of events could have major impact on communities and citizens.
- Care for sick family members and fear of exposure can result in significant worker absenteeism.

Flu Terms Defined

Seasonal (or common) flu is a respiratory illness that can be transmitted person to person. Most people have some immunity, and a vaccine is available.

Avian (or bird) flu is caused by influenza viruses that occur naturally among wild birds. The H5N1 variant is deadly to domestic fowl and can be transmitted from birds to humans. There is no human immunity and no vaccine is available.

Pandemic flu is virulent human flu that causes a global outbreak, or pandemic, of serious illness. Because there is little natural immunity, the disease can spread easily from person to person. Currently, there is no pandemic flu.

What's Happening Now?

It is difficult to predict when the next influenza pandemic will occur or how severe it will be. Wherever and whenever a pandemic starts, everyone around the world is at risk. Countries might, through measures such as border closures and travel restrictions, delay arrival of the virus, but cannot stop it.

Health professionals are concerned that the continued spread of a highly pathogenic avian H5N1 virus across eastern Asia and other countries represents a significant threat to human health. The H5N1 virus has raised concerns about a potential human pandemic because:

- It is especially virulent
- It is being spread by migratory birds
- It can be transmitted from birds to mammals and in some limited circumstances to humans, and
- Like other influenza viruses, it continues to evolve.

Since 2003, a growing number of human H5N1 cases have been reported in Azerbaijan, Cambodia, China, Indonesia, Iraq, Thailand, Turkey, and Vietnam. More than half of the people infected with the H5N1 virus have died. Most of these cases are all believed to have been caused by exposure to infected poultry. There has been no sustained human-to-human transmission of the disease, but the concern is that H5N1 will evolve into a virus capable of human-to-human transmission.

Avian Influenza Viruses

Avian (bird) flu is caused by influenza A viruses that occur naturally among birds. There are different subtypes of these viruses because of changes in certain proteins (hemagglutinin [HA] and neuraminidase [NA]) on the surface of the influenza A virus and the way the proteins combine.

Each combination represents a different subtype. All known subtypes of influenza A viruses can be found in birds. The avian flu currently of concern is the H5N1 subtype.

Avian Influenza in Birds

Wild birds worldwide carry avian influenza viruses in their intestines, but usually do not get sick from them. Avian influenza is very contagious among birds and can make some domesticated birds, including chickens, ducks, and turkeys, very sick and kill them.

Infected birds shed influenza virus in their saliva, nasal secretions, and feces.

Domesticated birds 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.

Avian influenza infection in domestic poultry causes two main forms of disease that are distinguished by low and high extremes of virulence. The "low pathogenic" form may go undetected and usually causes only mild symptoms (such as ruffled feathers and a drop in egg production). However, the highly pathogenic form spreads more rapidly through flocks of poultry. This form may cause disease that affects multiple internal organs and has a mortality rate that can reach 90-100%, often within 48 hours. The H5N1 virus is highly pathogenic.

Human Infection with Avian Influenza Viruses

"Human influenza virus" usually refers to those subtypes that spread widely among humans. There are only three known A subtypes of influenza viruses (H1N1, H1N2, and H3N2) currently circulating among humans. It is likely that some genetic parts of current human influenza A viruses originally came from birds. Influenza A viruses are constantly changing, and other strains might adapt over time to infect and spread among humans. The risk from avian influenza is generally low to most people, because the viruses do not usually infect humans. H5N1 is one of the few avian influenza viruses to have crossed the species barrier to infect humans, and it is the most deadly of those that have crossed the barrier.

Most cases of H5N1 influenza infection in humans have resulted from contact with infected poultry (e.g., domesticated chicken, ducks, and turkeys) or surfaces contaminated with secretion/excretions from infected birds.

So far, the spread of H5N1 virus from person to person has been limited and has not continued beyond one person. 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.

In the current outbreaks in Asia and Europe, more than half of those infected with the H5N1 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.

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

Because these viruses do not commonly infect humans, there is little or no immune protection against them in the human population. If H5N1 virus were to gain the capacity to spread easily from person to person, a 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 very closely and are preparing for the possibility that the virus may begin to spread more easily and widely from person to person.

What would be the Impact of a Pandemic?

A pandemic may come and go in waves, each of which can last for six to eight weeks.

An especially severe influenza pandemic could lead to high levels of illness, death, social disruption, and economic loss. Everyday life would be disrupted because so many people in so many places become seriously ill at the same time. Impacts can range from school and business closings to the interruption of basic services such as public transportation and food delivery.

A substantial percentage of the world's population will require some form of medical care. Health care facilities can be overwhelmed, creating a shortage of hospital staff,

beds, ventilators and other supplies. Surge capacity at non-traditional sites such as schools may need to be created to cope with demand.

The need for vaccine is likely to outstrip supply and the supply of antiviral drugs is also likely to be inadequate early in a pandemic. Difficult decisions will need to be made regarding who gets antiviral drugs and vaccines.

Death rates are determined by four factors: the number of people who become infected, the virulence of the virus, the underlying characteristics and vulnerability of affected populations and the availability and effectiveness of preventive measures.

Pandemics Death Toll Since 1900	
1918-1919	
U.S....	500,000+
Worldwide...	40,000,000+
1957-1958	
U.S....	70,000+
Worldwide...	1-2,000,000
1968-1969	
U.S....	34,000+
Worldwide...	700,000+

Planning and Preparation for Individuals and Families:

You can prepare for an influenza pandemic now. You should know both the magnitude of what can happen during a pandemic outbreak and what actions you can take to help lessen the impact of an influenza pandemic on you and your family. This checklist will help you gather the information and resources you may need in case of a flu pandemic.

1. To plan for a pandemic:

- Store a supply of water and food. During a pandemic, if you cannot get to a store, or if stores are out of supplies, it will be important for you to have extra supplies on hand. This can be useful in other types of emergencies, such as power outages and disasters.
- Have any nonprescription drugs and other health supplies on hand, including pain relievers, stomach remedies, cough and cold medicines, fluids with electrolytes, and vitamins.
- Talk with family members and loved ones about how they would be cared for if they got sick, or what will be needed to care for them in your home.
- Volunteer with local groups to prepare and assist with emergency response.
- Get involved in your community as it works to prepare for an influenza pandemic.

2. To limit the spread of germs and prevent infection:

- Teach your children to wash hands frequently with soap and water, and model the correct behavior.
- Teach your children to cover coughs and sneezes with tissues, and be sure to model that behavior.
- Teach your children to stay away from others as much as possible if they are sick. Stay home from work and school if sick.

3. Items to have on hand for an extended stay at home:

Examples of food and non-perishables	Examples of medical, health, and emergency supplies
○ Ready-to-eat canned meats, fruits, vegetables, and soups	○ Prescribed medical supplies such as glucose and blood-pressure monitoring equipment
○ Protein or fruit bars	○ Soap and water, or alcohol-based hand wash
○ Dry cereal or granola	○ Medicines for fever, such as acetaminophen or ibuprofen
○ Peanut butter or nuts	○ Thermometer
○ Dried fruit	○ Anti-diarrheal medication

- Crackers
- Canned juices
- Bottled water
- Canned or jarred baby food and formula
- Pet food
- Vitamins
- Fluids with electrolytes
- Cleansing agent/soap
- Flashlight
- Batteries
- Portable radio
- Manual can opener
- Garbage bags
- Tissues, toilet paper, disposable diapers

It is important to think about health issues that could arise if an influenza pandemic occurs, and how they could affect you and your loved ones. For example, if a mass vaccination clinic is set up in your community, you may need to provide as much information as you can about your medical history when you go, especially if you have a serious health condition or allergy.

Create a family emergency health plan using this information. Fill in information for each family member in the space provided. Like much of the planning for a pandemic, this can also help prepare for other emergencies.

Family Member Information:

Family Member	Blood Type	Allergies	Past/ Current Medical Conditions	Current Medications/ Dosages

For More Information

- Visit: <http://www.pandemicflu.gov/>
- The Centers for Disease Control and Prevention (CDC) hotline, 1-800-CDC-INFO (1-800-232-4636), is available in English and Spanish, 24 hours a day, 7 days a week. TTY: 1-888-232-6348. Questions can be e-mailed to cdcinfo@cdc.gov.
- Links to state departments of public health can be found at <http://www.cdc.gov/other.htm#states>.

Avian Influenza Q & A:

What is avian influenza (bird flu)?

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, but usually do not get sick from them. However, avian influenza is very contagious among birds and can make some domesticated birds, including chickens, ducks, and turkeys, very sick and kill them.

Infection with avian influenza viruses in domestic poultry causes two main forms of disease that are distinguished by low and high extremes of virulence. The “low pathogenic” form may go undetected and usually causes only mild symptoms (such as ruffled feathers and a drop in egg production). However, the “highly pathogenic” form spreads more rapidly through flocks of poultry. This form may cause disease that affects multiple internal organs and has a mortality rate that can reach 90-100%, often within 48 hours.

How does avian influenza spread among birds?

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 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.

Do avian influenza viruses infect humans?

Bird flu viruses do not usually infect humans, but more than 190 confirmed cases of human infection with bird flu viruses have occurred since 1997. The World Health Organization (WHO) maintains [situation updates](#) and [cumulative reports of human cases](#) of avian influenza A (H5N1). Please visit these and previous WHO situation updates and cumulative reports for additional information.

How do people become infected with avian influenza viruses?

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. The spread of avian influenza viruses from an ill person to another person has been reported very rarely, and transmission has not been observed to continue beyond one person. 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.

What are the symptoms of avian influenza in humans?

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.

How is avian influenza detected in humans?

A laboratory test is needed to confirm avian influenza in humans.

What are the implications of avian influenza to human health?

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.

How is avian influenza in humans treated?

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.

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

No. Influenza vaccine for the 2005-06 season does not provide protection against avian influenza.

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

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.

Is there a risk for becoming infected with avian influenza by eating poultry?

There is no evidence that properly cooked poultry or eggs can be a source of infection for avian influenza viruses. For more information about avian influenza and food safety issues, visit the [World Health Organization website](#).

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

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 monitors potential infection of poultry and poultry products by avian influenza viruses and other infectious disease agents.

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

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. Do not pick up diseased or dead wildlife. Contact your state, tribal, or federal natural resource agency if a sick or dead animal is found.

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

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), and 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.

What is the avian influenza A (H5N1) virus that has been reported in Africa, Asia, Europe, and the Near East?

Influenza A (H5N1) virus – also called “H5N1 virus” – is an influenza A virus subtype that occurs mainly in birds, is highly contagious among birds, and can be deadly to them.

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.

Human cases of influenza A (H5N1) infection have been reported in Azerbaijan, Cambodia, China, 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 http://www.who.int/csr/disease/avian_influenza/en/.

What are the risks to humans from the current H5N1 outbreak?

H5N1 virus does not usually infect people, but more than 190 human cases have been reported. Most of these cases have occurred from direct or close contact with infected poultry or contaminated surfaces; however, a few cases of human-to-human spread of H5N1 virus have occurred.

So far, spread of H5N1 virus from person to person has been rare and has not continued beyond one person. 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.

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 Asia and Europe very closely and are preparing for the possibility that the virus may begin to spread more easily from person to person.

How does H5N1 virus differ from seasonal influenza viruses that infect humans?

Of the few avian influenza viruses that have crossed the species barrier 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, 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 infection with H5N1 virus in humans treated?

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 and zanamavir, would probably work to treat influenza caused by H5N1 virus, but additional studies are needed to demonstrate their current and ongoing effectiveness.

Is there a vaccine to protect humans from H5N1 virus?

There currently is no commercially available vaccine to protect humans against the H5N1 virus that is being detected in 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 does CDC recommend regarding H5N1 virus?

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, distributed via the Health Alert Network, were sent to the health departments on August 12, 2004, and February 4, 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. To read the alerts, visit [Health Updates on Avian Influenza](#).

Does CDC recommend travel restrictions to areas with known H5N1 outbreaks?

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. For more information, visit [Travelers' Health](#).

Is there a risk in handling feather products that come from countries experiencing outbreaks of avian influenza A (H5N1)?

The U.S. government has determined that there is a risk to 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 the following countries: Afghanistan, Albania, Azerbaijan, Burma (Myanmar), Cambodia, Cameroon, China, Egypt, France (USDA-defined restriction zone only), India, Indonesia, Israel, Japan, Jordan, Laos, Kazakhstan, Malaysia, Niger, Nigeria, Romania, Russia, South Korea, Thailand, Turkey, Ukraine, and Vietnam (**current as of March 29, 2006**). 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](#).

Is there a risk to importing pet birds that come from countries experiencing outbreaks of avian influenza A (H5N1)?

The U.S. government has determined that there is a risk to importing pet birds from countries experiencing outbreaks of H5N1 influenza. CDC and USDA have both taken action to ban the importation of birds from areas where H5N1 has been documented. 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 the following countries: Afghanistan, Albania, Azerbaijan, Burma (Myanmar), Cambodia, Cameroon, China, Egypt, France (USDA-defined restriction zone only), India, Indonesia, Israel, Japan, Laos, Kazakhstan, Malaysia, Niger, Nigeria, Romania, Russia, South Korea, Thailand, Turkey, Ukraine, and Vietnam (**current as of March 29, 2006**).

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

There is no evidence of H5N1 having caused disease in birds or people in the United States. At the present time, 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.

Influenza Pandemic Preparedness

What changes are needed for H5N1 or another avian 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 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 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.

Avian Influenza Infection in Animals

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

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 cats be infected with avian influenza viruses?

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?

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?

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 Rügen, 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?

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 euthanized 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?

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?

Influenza A (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?

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](http://www.euro.who.int/en/about-us/partners/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?

For more information about avian influenza in cats, visit

www.fao.org/ag/againfo/subjects/en/health/diseases-cards/avian_cats.html.

Use of Antimicrobials to Control Avian Flu:

EPA registers pesticide products, including disinfectants, that are intended for use against avian influenza A viruses on hard, non-porous surfaces. These products are typically used by the poultry industry to disinfect their facilities. Typical sites listed on these product labels include: veterinary premises, poultry houses, farm premises and equipment, and other industrial and institutional settings. The label will indicate that the product is effective against "avian influenza A."

Although there are no antimicrobial products registered specifically against the H5N1 subtype of avian influenza A virus, EPA believes that the currently registered avian influenza A products will be effective against the H5N1 strain and other strains.

The U.S. Department of Agriculture (USDA) provides guidance for the disinfection of poultry facilities. See [USDA's Sanitation Performance Standards Compliance Guide, Sec. 381.58-381.60](http://www.aphis.usda.gov/animal_health/avian_influenza/USDA_Sanitation_Performance_Standards_Compliance_Guide_Sec_381.58-381.60) for the guidelines.

Chemstar Products Registered Against Avian Influenza A:

- **One-Step Detergent Disinfectant Spray**
- **Q-San Sanitizer (10% QAC)**
- **Q-San 7.5 (7.5% QAC)**
- **Foam San Sanitizer**
- **Sani-Cloth Plus Germicidal Disposable Wipes**
- **Purell Instant Hand Sanitizer**

Procedures for Retail Food and Food Service Establishments:

- Standard hygiene measures related to preparation, handling and serving of foods should be observed, with particular care on hand hygiene and sanitation of surfaces especially where raw poultry products have been exposed. It is very important that operating personnel are fully trained and practice good food safety procedures. Wash hands with an effective antimicrobial soap after touching contaminated surfaces, or if in contact with secretions from the mouth, nose or eyes.
- All surfaces exposed to raw products, especially poultry products should be properly cleaned and sanitized.
- Cook poultry to internal temperatures of 165°F. Sanitize thermometers between uses.
- All waste products from poultry/egg preparation should be disposed of immediately. Plastic bags should be used for trash bin lining. Securely seal plastic bags before emptying the trash bin, or if transferring to outdoor receptacle, ensure lid is securely placed on bin. Cleaning and sanitizing of trash cans is recommended.
- Additionally, follow standard sanitation procedures to reduce the risk of cross contamination. The Avian Influenza virus is simpler to destroy than many viruses since it is very sensitive to detergents, which destroy the outer layer of the virus. This layer is needed to enter cells of animals and therefore destroys the ability of the cell to infect the animal.
- For low-temperature machine ware washing use an appropriate sanitizing rinse. For high temperature machines, it is expected that the combination of heat and detergent will be sufficient for decontamination.
- For manual ware washing, use an effective detergent and an approved sanitizer.
- All work stations should have available an approved sanitizing solutions in the form of spray bottle or disposable wiping cloth. Hand sanitizing products should be available at all work stations when soap and water are not available.
- Use of a boot sanitizing procedure may prove to be helpful. A QAC can be utilized in a foam application or spray method.
- Shopping carts may need to be treated with an antibacterial agent and/or cleaned and sanitized on a regular basis. Use of a portable foamer to apply detergent and sanitizer is recommended. Use of a high-pressure spray should be avoided due to the potential to cause aerosols that will spread microorganisms through the environment.