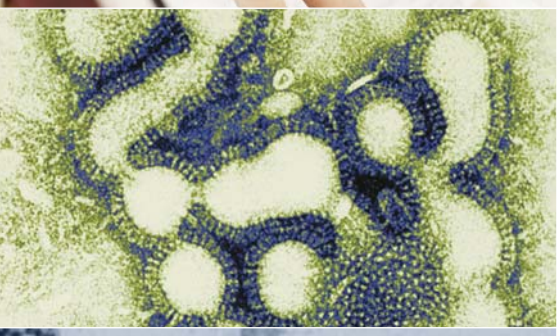
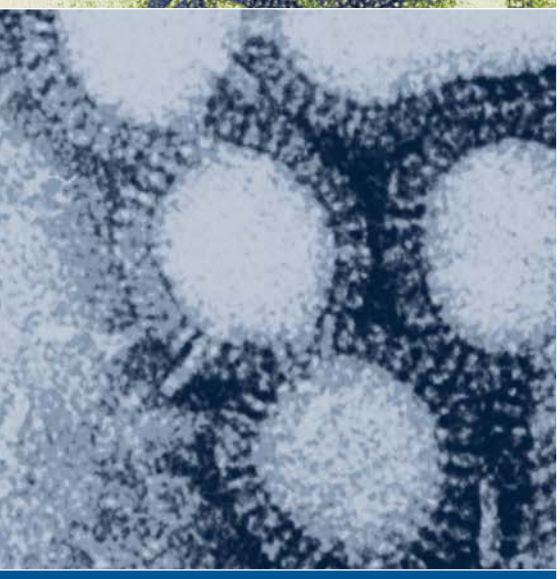
1. Influenza Background: Seasonal and Avian Flu





What is seasonal flu?

The flu is a contagious respiratory illness caused by influenza type A or type B viruses. It can cause mild to severe illness and at times can be fatal. The best way to prevent this illness is by getting a flu vaccination (flu shot) each fall.[1]

Each year in the United States, seasonal flu imposes a heavy burden on society[1]:

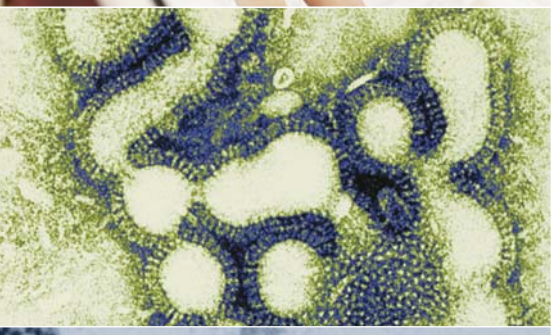
-About 5% to 20% of the population gets the flu

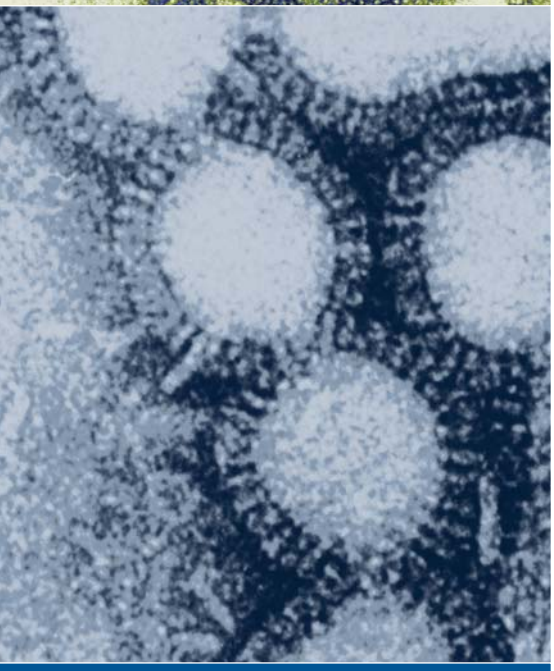
-More than 200,000 people are hospitalized with flu complications

-About 36,000 people die of flu complications

Common flu symptoms in adults and young children[1]

	In adults	Children may also experience
Symptoms	Fever (usually high)	Vomiting
	Headache	Diarrhea
	Extreme fatigue	
	Muscle aches	
	Dry cough	
	Sore throat	
	Stuffy nose	
Complications	Bacterial pneumonia	Sinus problems
	Dehydration	Ear infections
	Worsening of chronic medical conditions (congestive heart failure, asthma, diabetes)	



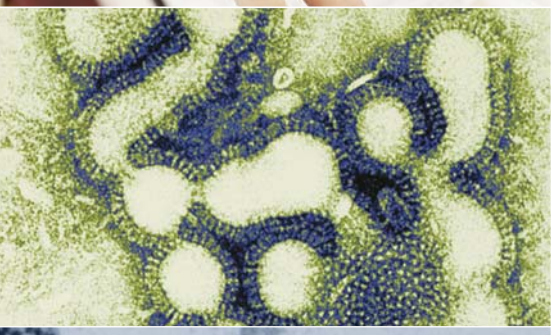


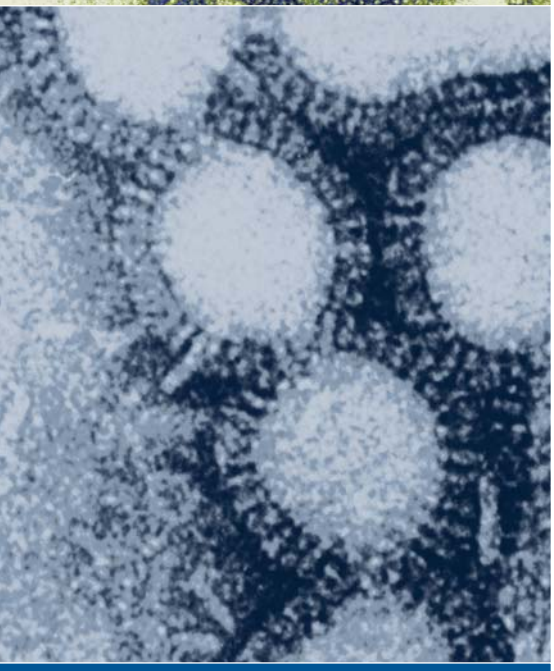
1. Influenza Background: Seasonal and Avian Flu

What is seasonal flu? (cont'd)

Flu spreads easily[1]

Flu viruses spread in respiratory droplets released by coughing and sneezing. The flu viruses usually spread from person to person, though sometimes people become infected by touching something with flu viruses on it and then touching their mouth or nose. Most healthy adults may be able to infect others 1 day before symptoms develop and up to 5 days after becoming sick. That means that you can pass on the flu to someone else before you know you are sick, as well as while you are sick.





1. Influenza Background: Seasonal and Avian Flu

Who is most at risk for seasonal flu?

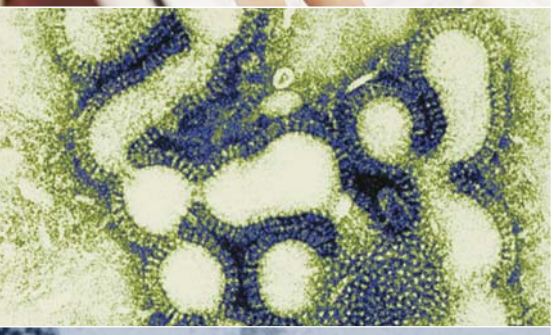
Seasonal flu—key segments at risk[1]

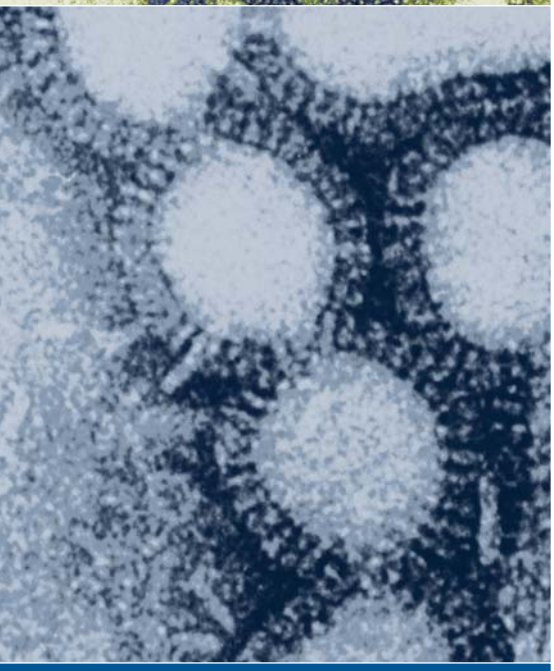
Some segments of the population are at high risk for serious flu complications and yearly vaccination is recommended. These high-risk groups include:

- –Adults 65 years and older (adults 50 to 64 years of age are considered at "increased risk")
- –People who live in long-term care facilities, such as nursing homes
- –Adults and children 6 months and older with chronic conditions, such as asthma, diabetes, kidney disease or weakened immune system
- –Children 6 months to 18 years of age who are on long-term aspirin therapy
- –Women who will be pregnant during the flu season
- –All children 6 to 23 months of age

Yearly vaccination is also indicated for:

- –Any person in close contact with someone in a high-risk group, such as healthcare workers and caregivers





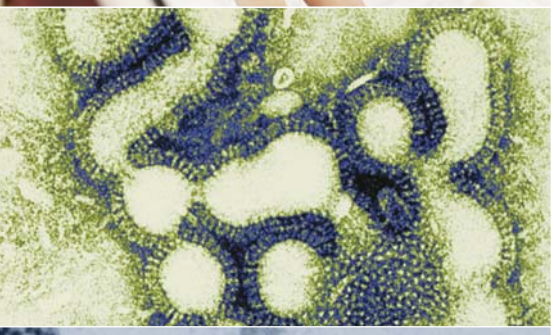
1. Influenza Background: Seasonal and Avian Flu

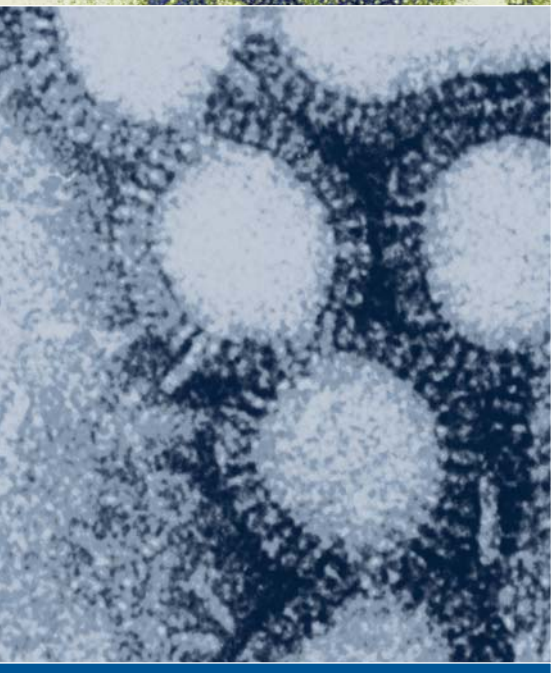
What is avian flu?

Avian flu among birds[2]

Avian flu is an infection caused by bird flu viruses. These influenza A viruses occur naturally among birds. Wild birds worldwide carry the viruses in their intestines but usually do not get sick from them. However, avian flu is very contagious among birds and can make some domesticated birds (including chickens, ducks and turkeys) very sick and kill them.

Infected birds shed flu virus in their saliva, nasal secretions and feces. Susceptible birds become infected when they have contact with contaminated secretions or excretions or with surfaces that are contaminated with secretions or excretions from infected birds. Domesticated birds may become infected with avian flu 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.





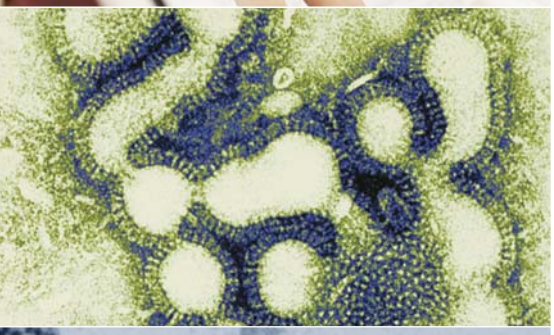
1. Influenza Background: Seasonal and Avian Flu

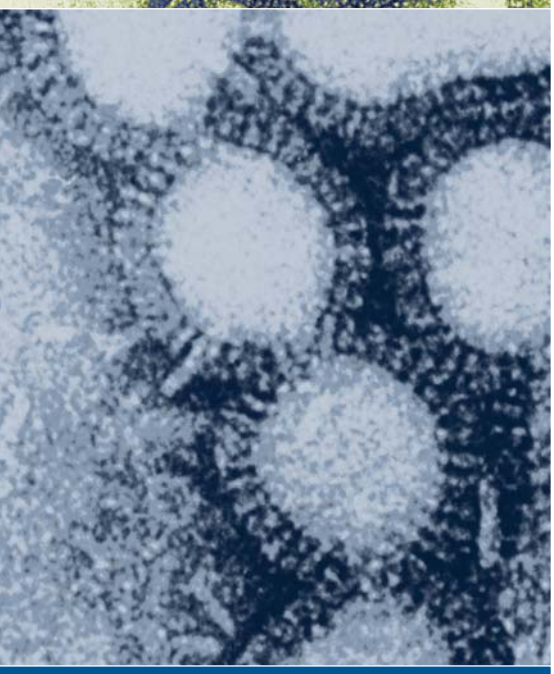
What is avian flu? (cont'd)

Avian flu among humans[2]

The risk from avian flu is generally low among most people because the viruses do not usually infect humans. However, confirmed cases of human infection from several subtypes of avian flu infection have been reported. Most cases of avian flu infection in humans have resulted from contact with infected poultry (domesticated chickens, ducks and turkeys) or surfaces contaminated with secretions/excretions from infected birds. The spread of avian flu from one ill person to another has been reported rarely and the cases are still unconfirmed. The transmission of this infection has not been observed to continue beyond one person. If the virus mutates to allow easy spread from one person to another, thousands, even millions of people can become infected, resulting in a pandemic.

Symptoms of avian flu in humans have ranged from typical human flu-like symptoms (eg, 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 flu may depend on which virus caused the infection.





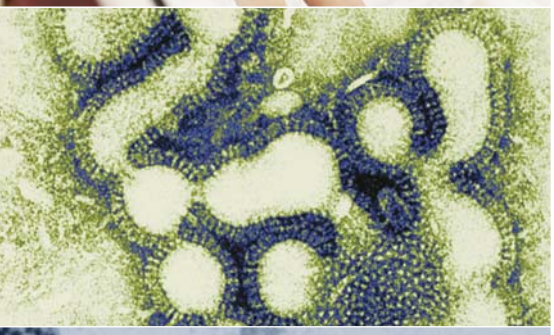
1. Influenza Background: Seasonal and Avian Flu

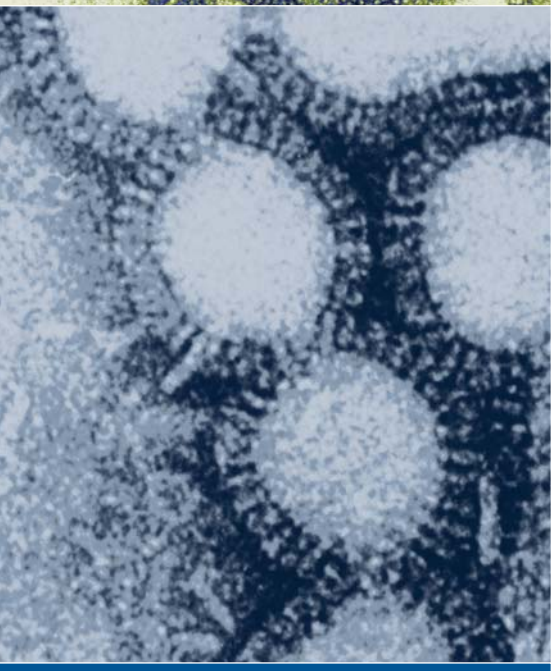
What is the difference between avian flu and pandemic flu?

Bird flu and pandemic flu are two different things. Both are a threat, but the threats they pose to human and animal health are distinct. Experts note that even health officials contribute to public confusion by using a single term—"bird flu"—to refer to three different phenomena: (1) avian flu in birds, (2) avian flu in people and (3) pandemic flu.[3]

Avian Flu in Birds: Avian flu is an infection caused by avian 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 flu is very contagious among birds and can make some domesticated birds, including chickens, ducks and turkeys, very sick and kill them. Infection with avian flu 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% to 100% often within 48 hours.[2]

Avian Flu in Humans: During an outbreak of avian flu among poultry, there is a possible risk to people who have contact with infected birds or surfaces that have been contaminated with secretions or excretions from infected birds.[2] Highly pathogenic H5N1, the cause of the current concern, is an avian virus that





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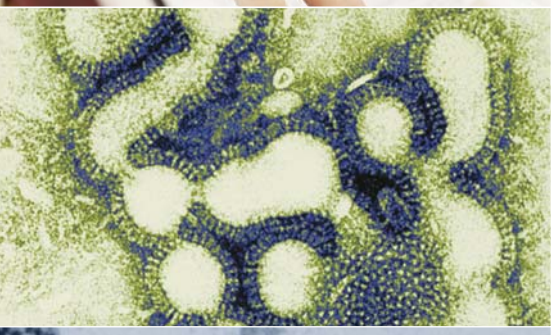
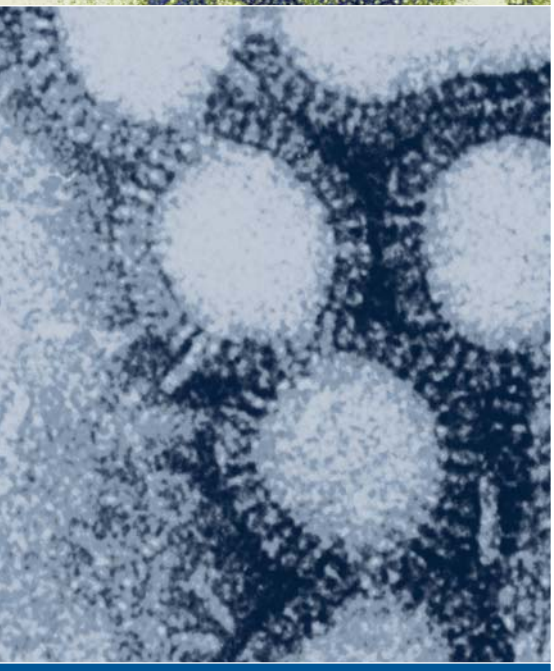
What is the difference between avian flu and pandemic flu? (cont'd)

has caused the death or destruction of tens of millions of birds and caused 194 cases of bird-to-human transmission of H5N1 and 109 human deaths (as of 5/9/06).[4] So far, the spread of the avian flu virus from person to person has been limited and has not continued beyond one person. Nonetheless, because all flu viruses have the ability to change, scientists are concerned that H5N1 virus could one day 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, a flu pandemic could begin.[2]

Pandemic Flu: This is a flu that causes a global outbreak, or pandemic, of serious illness that spreads easily from person to person. Currently there is no pandemic flu. A flu pandemic occurs when a new influenza virus emerges for which there is little or no immunity in the human population, begins to cause serious illness and then spreads person-to-person worldwide.[5]





1. Influenza Background: Seasonal and Avian Flu

Why are health experts concerned about avian flu?

H5N1

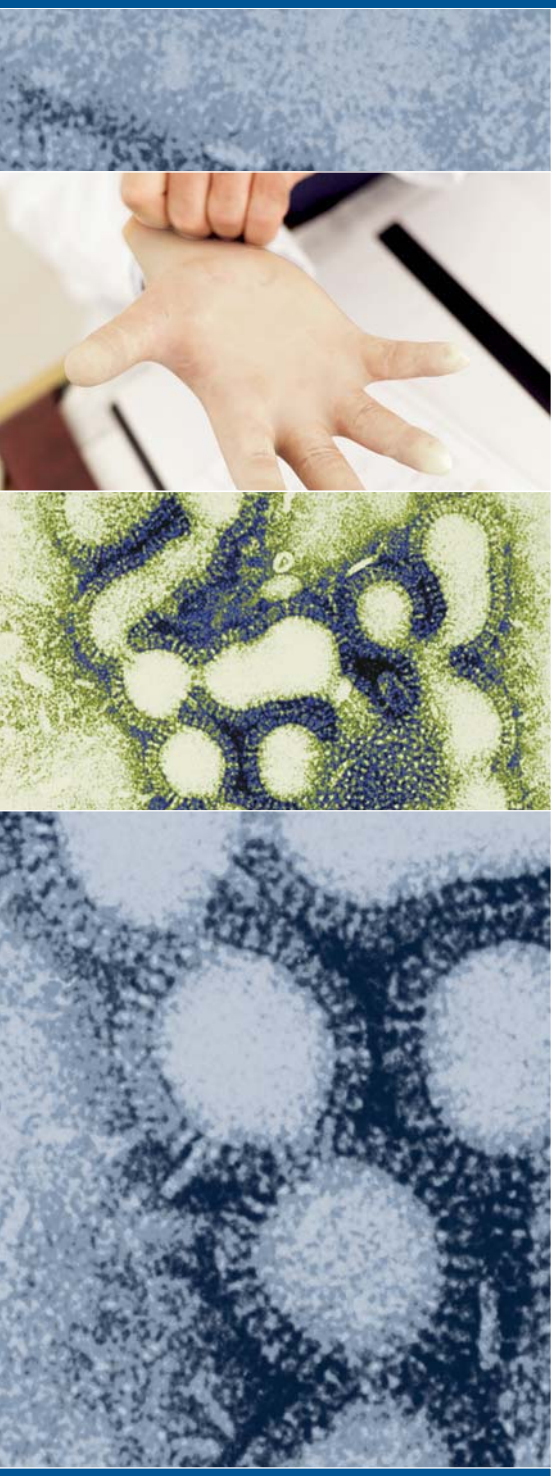
The current strain of bird flu—H5N1—that is infecting poultry flocks and migrating birds is highly contagious among birds and has resulted in the death or destruction of over 150 million birds. The outbreaks are the most widespread and severe on record. Infected birds often die within two days and, as of early 2006, birds in at least 30 countries have been affected.

Because such viruses rarely infect people, however, scientists fear we may have little or no immunity to them, making us particularly susceptible to illness should H5N1 undergo the mutations necessary to spread among humans.[6]

High mortality rate in humans

Since 2003, there have been nearly 200 documented cases of human infection with H5N1[6] among people working in close contact with infected domesticated birds in Asia, Europe and other parts of the world.[3,6]

According to the World Health Organization (WHO), in the first 194 cases of bird-to-human transmission of H5N1, there were 109 deaths.[4] In other words, more than half of those infected have died. This mortality rate of roughly 56% is one reason public health authorities worldwide are so concerned.



1. Influenza Background: Seasonal and Avian Flu

Why are health experts concerned about avian flu? (cont'd)

Person-to-person transmission is unconfirmed[6]

Thus far, it seems difficult for humans to acquire the virus from birds and even more difficult for the virus to spread among people. In fact, no suspected cases of person-to-person transmission have been confirmed thus far. This indicates that the species barrier is still fairly strong.

However, given how devastating H5N1 has been both for birds and the small number of humans it has infected, health experts are concerned that further mutations of H5N1 could change the virus into a form easily transmitted from person to person, resulting in a worldwide outbreak of the disease, or pandemic.