How to Prevent Avian Flu and Who Can Contract It

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Avian flu is a virus that affects birds but has also infected humans, and its transmission can be curbed by increased biosecurity and reduced factory farming.

Spraying to 'control' avian flu…

When humans interact with animals, whether it be in nature, a farm, a market, or their own homes, there is the risk of the spread of zoonotic disease. Illnesses including HIV/AIDS, the bubonic plague, rabies, and COVID-19 are all derived from non-human animals and have caused massive sickness and death in humans. Among these diseases is avian flu, a variation of the influenza virus that has spread from birds like chickens to humans and other animals. While there has been international attention called to biosecurity measures and surveillance to prevent the spread of avian flu, with tens of billions of birds being farmed for food each year, this is a tall order. The majority of these birds are farmed indoors in high-density facilities with little medical care, leading to the rapid spread and evolution of the virus, so addressing these conditions is an essential tool in preventing the spread of avian flu, and possibly the next major pandemic.

What is Avian Flu?

Avian influenza, commonly known as avian flu or bird flu, is a viral infection that primarily affects birds, including wild birds and farmed birds such as chickens, ducks, and turkeys. Some variants of the avian flu virus can also infect humans and other animals, such as the H5N1 variant that has infected over a thousand humans worldwide.

The virus was first isolated in 1902 from Italian turkeys and since then, several variants have been identified. The most notable outbreak occurred in 1997 when the H5N1 virus crossed the species barrier and infected humans in Hong Kong. An estimated 131 million birds died from avian flu in 2022 alone, and 458 humans have died from the disease in the last decade. Due to these outbreaks, organizations such as the World Health Organization and the World Organisation for

Animal Health have implemented surveillance and preparedness measures to monitor and respond to avian influenza outbreaks.

What Causes Avian Flu?

The most common cause of avian flu is exposure to bodily fluids from an infected bird. This includes their waste, saliva, or other excretions. The virus can survive on surfaces for hours or even days under correct conditions, so infection can also spread through food, clothing, and other equipment. These modes of transmission are exacerbated due to the high volume of birds transported for food, as their fluids can contaminate cages and shipping facilities.

Why are There So Many Outbreaks?

A combination of the virus being highly contagious and the high density of poultry farms has resulted in frequent outbreaks of avian flu. In an industrial setting, which is how 99% of poultry is farmed, the animals are packed densely, regardless of whether or not they are in cages. Chickens on these farms typically are allotted space equivalent to less than a sheet of printer paper, 8.5 by 11 inches, per animal. This puts them in the range of the bodily fluids of the other birds, allowing for the rapid spread of the virus.

How to Prevent Avian Flu

Many measures in combination are needed to prevent the spread of avian flu once an outbreak begins, including stringent biosecurity measures, proper surveillance, and international cooperation, but it is also important to consider the root cause of most outbreaks. These steps combined with a decreased reliance on densely populated factory farms will lead to a decrease in the spread of the illness.

Biosecurity Measures

The regulation of birds susceptible to avian flu is a key strategy for preventing its spread. This includes restricting the spaces the birds have access to, as well as which employees can go in select areas. Several guidelines are in place for quarantining birds, especially those being transferred from one farm to another, to prevent the spread of the flu. Additionally, maintaining hygiene and upkeeping waste control is essential, as fecal material is a major vector for the virus. Some farms also choose to vaccinate their birds, but this is not common and is currently only available for chickens. A vaccine also exists for humans and the European Union intends to administer the vaccine to poultry workers, veterinarians, and other high-risk groups in the case of an outbreak.

Surveillance

Surveillance strategies for avian flu rely on the coordination of international bodies such as the World Health Organization, the World Organisation for Animal Health, and the Food and Agriculture Organization. These groups encourage regular screening and enable countries to exchange crucial data on outbreaks and control strategies. They also keep an updated overview of outbreaks around the world and make public statements to alert governments and citizens of potential risks.

Poultry and Eggs

Contracting avian flu through food consumption is rare, as the primary mode of transmission is direct contact with infected birds or their environments. Still, humans may contract avian flu from improperly prepared poultry products, underscoring the importance of maintaining strict hygiene practices, especially for individuals exposed to live birds. Frequent handwashing and avoiding contact with sick birds significantly reduce the risk of infection. Proper cooking, ensuring that poultry and eggs reach a safe internal temperature, is another fundamental preventive measure, as high temperatures eliminate the virus. For those opting for an extra layer of precaution, abstaining from poultry and eggs

remains a viable choice, and this additionally reduces demand for poultry products, especially from overcrowded factory farms.

Ending Factory Farming

While avian flu affects both wild and domestic birds, it is important to note that70% of all birds on earth are poultry, farmed for human consumption. Of that number, 94% are chickens, 3% are ducks, and 1% are turkeys. These 26 billion birds also live close to and interact with humans, which is why it is important to center farmed animals in the discussion of avian flu.

While biosecurity measures, surveillance, and food safety play roles in preventing the spread of an outbreak, they do not ensure an outbreak does not occur in the first place. Reducing reliance on factory farming will decrease the number of birds at high risk for contracting the illness due to poor care and crowded conditions, as well as the total number of birds who can serve as vectors for the virus. This will also result in a decrease in the number of humans contracting the potentially deadly virus from working with sick birds in indoor farms.

Who Can Get Avian Flu

Humans

While avian flu primarily affects birds, humans can contract the virus, most commonly through direct contact with birds or infected surfaces. There have been some unconfirmed cases of human-to-human spread, but these instances are rare and are typically observed in family members or healthcare professionals caring for sick patients. When humans contract avian flu, they may exhibit symptoms including fever, sore throat, muscle aches, and respiratory discomfort, with severe cases causing acute respiratory distress that can lead to death. The World Health Organization reported 1568 cases of bird flu in humans between 2013 and 2023.

Can Dogs Get Avian Flu?

Dogs and other companion animals can contract avian flu, but it is relatively rare. If dogs come into contact with or eat an infected bird, they may display similar symptoms to infected humans including fever, cough, sore throat, difficulty breathing, red eyes, headaches, and more. Caretakers of sick animals should continuously monitor symptoms and contact a veterinarian if symptoms worsen.

Other Animals

Avian flu has also been observed in other mammals including ferrets, pigs, minks, and cats. In 2016, there was even a reported case of a cat spreading avian flu to a human after coming into contact with an infected bird. There is evidence that avian flu affects many kinds of animals including farmed animals, companion animals, wild animals, and zoo animals with cases being reported in captive tigers and leopards.

Could Avian Flu Be the Next Major Pandemic

Considering the number of zoonotic diseases that have led to major pandemics, including COVID-19 and the bubonic plague, avian flu could pose a major risk to human health. Fortunately, avian flu has yet to show strong evidence of human-to-human transmission, a key trait of viruses that become human pandemics, meaning that it would have to undergo significant evolution before causing wide-scale human infections.

Similarities to COVID-19

Avian flu shares numerous similarities with COVID-19 including its symptoms, severity, and zoonotic origin. Both cause respiratory illnesses in humans and can be accompanied by a fever, body aches, and sore throat. When these symptoms progress, both viruses can lead to death, primarily from respiratory failure.

Additionally, both viruses come from animals, particularly animals used for food. The first case of avian flu was reported in domesticated waterfowl and modern outbreaks commonly originate in poultry farms. Likewise, the origin of COVID-19 is widely accepted to be from bats at a wet market where fresh meat and other perishable food is sold.

While the two viruses share many similarities, they differ in key ways. In addition to not definitively displaying human-to-human transmission, avian flu also has a shorter incubation time of only 2 to 5 days, compared to COVID-19's week-long period, meaning it may be easier to control the spread. The viruses also have different molecular structures and come from different viral families, with bird flu being an influenza virus and COVID-19 being a coronavirus.

Even if avian flu itself does not cause a pandemic similar to COVID-19, it is very plausible that the next pandemic will emerge from a zoonotic disease as both viruses have before. This threat is increased by the existence of factory farms in which large numbers of animals share tight indoor spaces with minimal medical care.

Conclusion

While avian flu started in waterfowl, today the virus has evolved to affect billions of animals including tens of billions of birds farmed for food, wild animals, pets, and humans. To prevent birds, humans, and other animals from contracting the often fatal virus, it is essential to continue biosecurity and surveillance measures including quarantine procedures, vaccinations, and international collaboration. At the same time, public health leaders must also consider the conditions under which the majority of birds, both wild and domesticated, live and how their environment contributes to the proliferation of the disease. During the height of the COVID-19 pandemic, government officials urged citizens to practice social distancing so that the virus could not spread between people in close contact. For birds in factory farms, who often do not have room to spread their wings, there is no option but to be exposed to the contagious bodily fluids of others. For workers in these farms, identifying and treating sick birds is also extremely difficult due to their density. Thus, the international community must holistically address the threat of a wide-scale avian flu outbreak, or a similar zoonotic disease, including their breeding grounds in factory farms.

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