

# *Expert Views*

## **H5N1 Bird Flu:**

What Insurers Need to Know

Blood test for viral infection  
**H5N1 Avian Influenza**

**SCOR**  
The Art & Science of Risk

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## Introduction

The human population is constantly under threat from various health risks, including emerging infectious diseases. The Covid-19 pandemic served as a stark reminder of the significant damage that a virus can inflict on human health and society.

As of 2024, we are surrounded by various infectious disease risks such as mpox, Oropouche fever, and new and existing variants of Covid-19. Special attention is given to the H5N1 virus, which is causing bird flu which is spreading worldwide, leading to outbreaks in poultry and subsequently in cows and other mammals including humans.

The situation is evolving quickly, making it difficult to predict how this outbreak could become the next pandemic.

Regardless of the course this outbreak takes, one of the most effective and time-tested ways to prevent the spread of the virus, like any disease, is to equip ourselves with accurate knowledge. This allows us to make informed decisions and take necessary actions.

This article provides fundamental information on H5N1 and its global outbreak, the potential impact on mortality, and possible implications for life and health insurers.

## What is H5N1?

H5N1 is one of more than 130 subtypes of Influenza A virus<sup>1</sup> that causes avian influenza or bird flu, a highly contagious viral disease that infects both wild and domestic birds, sometimes causing massive damage to global poultry production. The recombination of multiple H5N1 subtypes – called clades – cause wider spread of the virus, carried by migratory birds.

The first documented H5N1 outbreak occurred during 1996-1997 in Southern China. The subsequent outbreak that started in 2003 spread over nine Asian countries. From 2003 to July 2024, 896 cases of human infection with the H5N1 virus were reported from 24 countries, of which 463 were fatal, corresponding to a case fatality rate of 52%.<sup>2</sup>

The currently prevailing clade (labelled 2.3.4.b) involved in dairy cattle was discovered in 2020 in Europe, Asia and Africa. This Eurasian clade genetically differs from the previous one and permits mammals-to-mammals transmission.

For more information on avian Influenza, refer to SCOR's 2022 Expert Views article [Agriculture and Livestock Insurance- Avian Influenza](#).



## Key facts about the 2020-2024 H5N1 outbreak development

- The current clade, which originated in 2020, has spread to North America in 2021 via migratory birds and to South America in 2022.
- The outbreak has expanded from poultry to dairy cattle in the US in March 2024, with about 15 states reporting confirmed cases up to 13<sup>th</sup> November 2024.<sup>3</sup> The latest updates on confirmed cases in livestock can be traced at the USDA's website.
- Sporadic human cases are reported mainly from farm workers exposed to infected birds/animals. There isn't any evidence for human-to-human transmission yet.
- The H5N1 monitoring by the CDC surveillance system reported 56 human cases in the United States between 2022 and November 2024<sup>4</sup> and one human case in Canada diagnosed in November 2024. Most cases are exposed to dairy cattle or poultry and evolved favorably until now.
- A joint statement from the WHO, the Food, Agriculture Organization of the UN and from the World Organization for Animal Health in November 2024 declared that the global public health risk of H5N1 is still low.<sup>5</sup>
- Typical symptoms of bird flu in humans range from mild to severe, including cough, fatigue, fever, shortness of breath, etc.
- US farmers' serology testing shows 7% positives for H5N1, and only half of them experienced symptoms. It is likely that the total number of cases is underestimated and is expected to continue increasing in the future.
- There is no commercial H5N1 test currently available





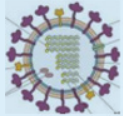

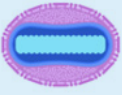
## H5N1, Covid-19 and mpox: Comparison

H5N1, Covid-19 and mpox are three viruses of major concern frequently appearing in the news today. What are their differences and similarities?

They are all zoonotic diseases, i.e., they originated in animals and were subsequently transmitted from animals to humans. But they have distinctive differences. The most important difference is that H5N1 is currently not a human-to-human transmitted disease, while Covid-19 and mpox are. H5N1 and Covid-19 are transmitted mainly through the respiratory pathway, while mpox infection is through direct contact.

Another important difference among them is their causative agent: H5N1 is a strain of the influenza virus, while Covid-19 is caused by a coronavirus, and mpox is caused by an orthopox virus.

Figure 1: Comparison of H1N1, Covid-19 and mpox

	 <b>H5N1</b>	 <b>Covid-19</b>	 <b>Mpox</b>
<b>Causative Agent</b>	Avian influenza A/H5N1 virus	SARS-COV-2	Mpox virus (MPXV)
<b>Year of Discovery</b>	1996	2019	1958
<b>Virus Genome</b>	Negative-stranded RNA	Positive-stranded RNA	Double-stranded DNA
<b>Genus</b>	Orthomyxoviridae	Betacoronavirus	Orthopoxvirus
<b>Modes of Transmission to/ among Human</b>	Direct or indirect contact with infected animals	Respiratory droplets, touching contaminated objects	Close physical contact with infected person/animal, touching contaminated objects
<b>Human-to-human transmission ?</b>	Not yet	Yes	Yes
<b>Animal Reservoirs</b>	Birds	Bats	African rodents
<b>Typical Symptoms</b>	Flu-like symptoms	Fever, cough, fatigue, loss of smell or taste	Skin rash, fever, swollen lymph node
<b>Vaccines</b>	Available	Available	Available



## How is H5N1 transmitted to humans and what is the risk of person-to-person transmission?

Human infection with H5N1 is rare at the current stage, as it requires “close, prolonged, unprotected exposure to infected birds or contaminated environments,” according to the CDC. In other words, it can be transmitted to humans if a person breathes in air droplets or dust containing the virus, or when a person touches infected birds or contaminated surfaces and then touches their face. Consuming properly cooked poultry meat and poultry products or drinking pasteurized milk does not transmit the virus to humans.<sup>6</sup>

Even though human-to-human transmission of H5N1 has not yet been observed, concerns are mounting as the virus has now spread among dairy cows, which is new and unexpected. This indicates that the virus could mutate and spread to other animals or humans. A key step in acquiring this ability would be to have pigs that are affected with both avian and human influenza virus, where a viral reassortment process can occur and the resulting new strain of virus can obtain the ability to be transmitted to humans. While it has a lesser degree of risk, mink is also likely to be another host species that can act as a mixing vessel.<sup>8</sup>

## What prevention methods are currently available?

The best way to prevent an H5N1 infection is to avoid sources of exposure, such as touching infected birds or inhaling droplets. Mask wearing and hand washing when handling domestic birds can reduce risk of exposure. The WHO also recommends thoroughly cooking eggs, poultry and other potentially infected meat and food to kill viruses. Consuming unpasteurized or raw milk products is discouraged.

Avian influenza vaccine for birds is available and can reduce mortality in infected birds. But the vaccine does not block transmission, which means that vaccinated birds still can transmit H5N1, which challenges control of disease spread.

Health officials are pushing a plan to produce a vaccine for human use against the current H5N1 strain. The US FDA has approved three H5N1 vaccines made by Sanofi, GSK, and CSL Seqirus.

In July 2024, the WHO announced that a new initiative was launched to advance mRNA-based vaccines H5N1 for human use.<sup>9</sup> The benefit of mRNA vaccines is that they can be manufactured in about six to eight weeks, while traditional egg- and cell-based platforms take months. The mRNA vaccines may also have better efficacy compared with traditional vaccines. Currently, Pfizer and Moderna are developing mRNA H5N1 vaccines.<sup>10</sup> The first results are expected in late 2024.

## What treatments are available if H5N1 is transmitted to humans?

Authorities such as CDC recommend treatment as soon as possible with antiviral flu drugs for people with an H5N1 infection. Treatment must be adapted according to the patient's case severity, age, and comorbidities, and may include hospitalization, supportive care, and the use of antivirals. Neuraminidase inhibitors and M2 inhibitors (adamantanes) as listed below are authorized for use as treatment of infected flu patients and could be used during an influenza pandemic.

- zanamivir (sold under the brand name Relenza)

- oseltamivir (sold under the brand names Ebilfumin and Tamiflu)

In addition, the cap-dependent endonuclease inhibitor baloxavir marboxil (sold under the brand name Xofluza) has also been authorized for the treatment of influenza.

Antivirals could be used also as post-exposure prophylaxis for people exposed to H5N1. According to CDC, post-exposure antiviral prophylaxis is recommended when exposure was unprotected.



## What are the implications for L&H insurers?

While the situation around the current H5N1 outbreak is constantly evolving, currently its impact on L&H insurance business is low since human-to-human transmission is not observed. H5N1 is not a new virus and vaccines and treatments are available.

As of November 2024, the current H5N1 outbreak is not considered a major public health threat, but authorities are carefully monitoring the situation. Most of H5N1 human cases reported in North America were asymptomatic or mild, such as fatigue, conjunctivitis, and respiratory symptoms. Although the previous H5N1 strain was potentially deadly for humans,<sup>11</sup> it is important to note that the current H5N1 virus is different from the clade that caused cases in the 2003-2005 period.<sup>12</sup>

For the (re)insurance industry, the risk lies in the potential of H5N1 to significantly influence claims patterns in an unexpected way. This can happen generally if a disease is poorly understood, highly contagious, and difficult to treat. However, for H5N1, the current situation indicates that the level of understanding and treatment of H5N1 is high, lowering the potential impact on mortality and morbidity.

## Conclusion

The current risk related to H5N1 is low because there is no sustained human-to-human transmission, vaccines are being developed, and treatments are available. However, there remains a possibility of the virus mutating into a strain capable of human-to-human transmission, which would increase the pandemic risk. SCOR is closely monitoring the development, and we are sharing updates on our assessments when necessary.

We invite you to contact our local SCOR representatives and experts for more information.

## Endnotes

1. [Types of Influenza Viruses | CDC](#)
2. [Cumulative number of confirmed human cases for avian influenza A\(H5N1\) reported to WHO, 2003-2024, 19 July 2024](#)
3. [Avian influenza virus type A \(H5N1\) in U.S. dairy cattle | American Veterinary Medical Association \(avma.org\)](#)
4. [How CDC is monitoring influenza data among people to better understand the current avian influenza A \(H5N1\) situation | Bird Flu | CDC](#)
5. [joint-fao-oie-who-preliminary-risk-assessment-associated-with-avian-influenza-a\(h5n1\)-virus.pdf](#)
6. [avian-flu-transmission.pdf \(cdc.gov\)](#)
7. [An update on swine-origin influenza virus A/H1N1: a review - PMC \(nih.gov\)](#)
8. [Mink is a highly susceptible host species to circulating human and avian influenza viruses - PMC \(nih.gov\)](#)
9. [New initiative launched to advance mRNA vaccine development against human avian influenza \(H5N1\) \(who.int\)](#)
10. [Moderna Receives Project Award through BARDA's Rapid Response Partnership Vehicle Consortium to Accelerate Development of mRNA-based Pandemic Influenza Vaccine \(modernatx.com\)](#)
11. [H5N1 Bird Flu: What You Need to Know > News > Yale Medicine](#)
12. [Finding the real case-fatality rate of H5N1 avian influenza | Journal of Epidemiology & Community Health \(bmj.com\)](#)

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