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[Home](#) > Avian flu — What is it? Is there a vaccine?

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## **Avian flu — What is it? Is there a vaccine?** <sup>[1]</sup>

Dear Alice,

Is there any vaccine for avian flu? Any viral replication inhibitor? What would you suggest to buy?

— Person with family residing close to Russia and Turkey...

### **Answer**

Dear Person with Family Residing Close to Russia and Turkey,

For those who are unfamiliar, avian flu (also called bird flu) is a virus that primarily infects birds but has found its way into humans as well. While there is a vaccine, it only provides limited protection against one strain of the virus. As for a viral replication inhibitor that slows down or stops the progression of infection (i.e., a neuraminidase inhibitor), research has shown certain antivirals to be effective (more on that in a bit). For more information about the various strains of influenza, or if you suspect you or a family member may be ill, speaking with a health care provider is strongly encouraged.

Back to the strains at hand: avian flu is caused by certain influenza strains; however, H5N1 and H7N9 are the most commonly found in humans. Both strains vary in terms of their geographical spread and impact on humans — while the H7N9 strain has been limited to China, H5N1 has spread globally, impacting Europe, Asia, Australia, and North America. Furthermore, as compared to H7N9, H5N1 tends to infect more humans, but has a lower fatality rate. Transmission of both strains occurs when the virus is released in the feces, saliva, and nasal secretions of infected birds. Uninfected birds then catch the virus from contact with contaminated secretions, excretions, or surfaces that have been contaminated by the virus, become contaminated themselves, and further the cycle of infection.

To protect against the bird flu, many people have sought out newly-developed vaccines. Currently, there's only a vaccine for the H5N1 strain, but studies show the vaccine only produced antibodies in 45 percent of individuals at a level sufficient to reduce the risk of infection. Researchers believe that even those with a lower level of antibodies could still receive some protection from H5N1. However, it's crucial to note that the H5N1 virus continually mutates, rendering many vaccine samples less effective at protecting humans from future flu outbreaks.

Thus, it's impossible to actually test if the current vaccine would be protective in the case of an epidemic, without first testing the exact strain which is causing the epidemic. Also, keep in mind that the existing supply of the vaccine is limited. As such, even if an epidemic is declared and the current vaccine is effective, it would take approximately four to six weeks for researchers to produce more of the vaccines for human consumption.

If someone does become infected with avian flu, there are antiviral drugs that can offer effective treatment. Namely, oseltamivir, a neuraminidase inhibitor, blocks the function of a protein in the virus and interferes with its ability to replicate, which then slows down or stops the progression of infection. But, while oseltamivir may be useful for people who have the flu, there are also some downfalls to consider: oseltamivir's expensive price, potential undesirable side effects, complications with other medications (such as respiratory distress, fever, and chills), and its limited shelf life, which often doesn't allow for stockpiling of the drug for future use. Moreover, some people have taken this antiviral drug in the past without completing the prescribed regimen, so both H5N1 and H7N9 strains of influenza have developed some resistance to oseltamivir. In turn, this has rendered it less effective as a treatment option.

While some people are concerned that avian flu can rapidly spread among birds, it's worth noting that human infection has decreased over time. Catching this virus from another person is extremely rare, and while contracting avian flu from an infected bird is possible, it's unlikely. In fact, there isn't much concern as long as humans don't go out of their way to interact with infected birds and environments. For those planning on a poultry roast (or other bird-based menu item) for their plates, it's critical that the meat is handled properly to eliminate risk for infection. You might also have some peace of mind knowing that many global health organizations such as the [Centers for Disease Control and Prevention \(CDC\)](#) [2] and [World Health Organization \(WHO\)](#) [3] have created measures to protect humans from exposure to avian flu, with health officials monitoring outbreaks closely. These organizations and more have worked to create prevention and response strategies to any potential avian flu outbreak.

Remember that prevention is key, and being aware of what you consume and taking simple measures such as [washing your hands](#) [4] can help prevent exposure to the avian flu. You can always talk with your health care provider to learn more about this (or any other) strain of influenza, prevention strategies, and treatment options.

Take care,

Alice!

Category:

[General Health](#) [5]

[Immunizations, Screenings, & Tests](#) [6]

[Colds & Flu](#) [7]

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[What's up with FluMist?](#) [10]

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[Medical Services \(Morningside\)](#) <sup>[11]</sup>

[Medical Services \(CUIMC\)](#) <sup>[12]</sup>

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## Footer menu

- ▼ [Contact Alice!](#)
  - [Content Use](#)
  - [Media Inquiries](#)
  - [Comments & Corrections](#)
- ▼ [Syndication & Licensing](#)
  - [Licensing Q&As](#)
  - [Get Alice! on Your Website](#)
  - [Full Site Syndication](#)
  - [Link to Go Ask Alice!](#)

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### Links

[1] <https://goaskalice.columbia.edu/answered-questions/avian-flu-%E2%80%94-what-it-there-vaccine-0>

[2] <https://www.cdc.gov/flu/avianflu/index.htm>

[3] [http://www.who.int/influenza/resources/avian\\_influenza/en/](http://www.who.int/influenza/resources/avian_influenza/en/)

[4] <https://goaskalice.columbia.edu/how-to-wash-hands>

[5] <https://goaskalice.columbia.edu/category/general-health>

[6] <https://goaskalice.columbia.edu/category/immunizations-screenings-tests>

[7] <https://goaskalice.columbia.edu/category/colds-flu>

[8] <https://goaskalice.columbia.edu/answered-questions/should-i-get-flu-shot-1>

[9] <https://goaskalice.columbia.edu/answered-questions/know-about-nose-blowing>

[10] <https://goaskalice.columbia.edu/answered-questions/whats-flumist>

[11] <https://goaskalice.columbia.edu/resource/medical-services-morningside>

[12] <https://goaskalice.columbia.edu/resource/medical-services-cuimc>