

Increased Risk H5N1 Virus in Humans

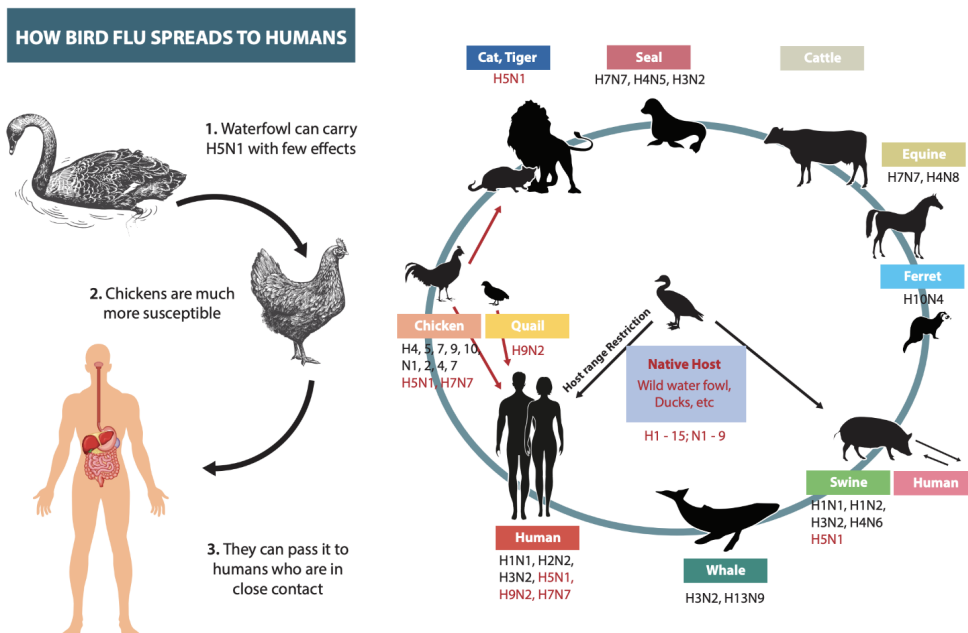
Why in News?

Recently, the researchers found that circulating the H5N1 clade virus attached better in the human respiratory tract.

- **Avian influenza** - It is highly contagious and spreads through direct contact with infected birds or their secretions, including saliva, feathers, and faeces.

Avian influenza is a zoonotic disease, meaning it can spread from animals to humans.

- **H5N1** - It is a subtype of Avian Influenza A, was 1st detected in geese, China on 1996 and causing outbreaks in birds since then.
- **Key causes of spread**
 - Wildlife spillover
 - Large-scale poultry farming and poor biosecurity measures
 - Improper cooking practices



H5N1 Clade

Clade 2.3.2.1a

- Detected in a child traveler returning to Australia from India, 2024.

Clade 2.3.4.4b

- Identified in dead migratory birds in China, November 2021.
- It is *affecting wild and domestic birds and mammals* worldwide.
- Since 2020, it led to an unprecedented number of deaths in wild birds and poultry in many countries.
- In 2021, spread to North America and in 2022 to Central and South America.

*A **clade**, in biology, is a group of organisms that consists of a common ancestor and all of its descendants.*

H5N1 in Humans

- **H5N1 clade 2.3.4.4b** - Influenza A virus *cross the species barrier and infect humans* and spread from one person to another.
- It *infect the cells in the respiratory epithelium* of the upper respiratory tract.
- It is endowed with the ability to attach to and replicate in the upper respiratory tract lead to infection and transmission of the virus.
- The ability to attach to cells in the lower respiratory tract is associated with its ability to cause severe respiratory disease.
- **Increased risk** - The receptor binding repertoire of H5N1 virus has expanded to attach to receptors in the human upper and lower respiratory tracts.
 - There have been *64 confirmed human cases* of H5N1 clade 2.3.4.4b in the U.S. as of December 2024.

The H5N1 virus has now established its presence in 108 countries across 5 continents, impacting even endangered species like the California condor and polar bears. Alarmingly, bird flu was detected in gentoo and King penguins in Antarctica for the first time in January 2024.

References

1. [The Hindu| Increased Risk of H5N1 Clade Infection on Humans](#)
2. [WHO| Avian influenza A\(H5N1\) virus](#)