



*"There was a little girl, and she had a little bird,
And she called it by the pretty name of Enza;
But one day it flew away, but it didn't go to stay,
For when she raised the window, in-flu-Enza.*

- Nursery rhyme, 1894

HPAI, H5N1 – Why the concern?

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H5N1

1996 – 1997 H5N1 virus first identified in domestic waterfowl in China. Poultry outbreaks occur in China and Hong Kong. 16 human cases, 8 deaths

2003 – 2005 H5N1 re-emerges in China, spreads to other countries, widespread bird outbreaks in Asia.

2020 - New genotype **H5N1, clade 2.3.4.4b** emerges and spreads rapidly in wild birds.

- The virus spreads across Europe in autumn.

2022 - February, the 2.3.4.4b clade begins causing poultry outbreaks in the U.S. First Human case in U.S

2023 - Additional animal infection detections.

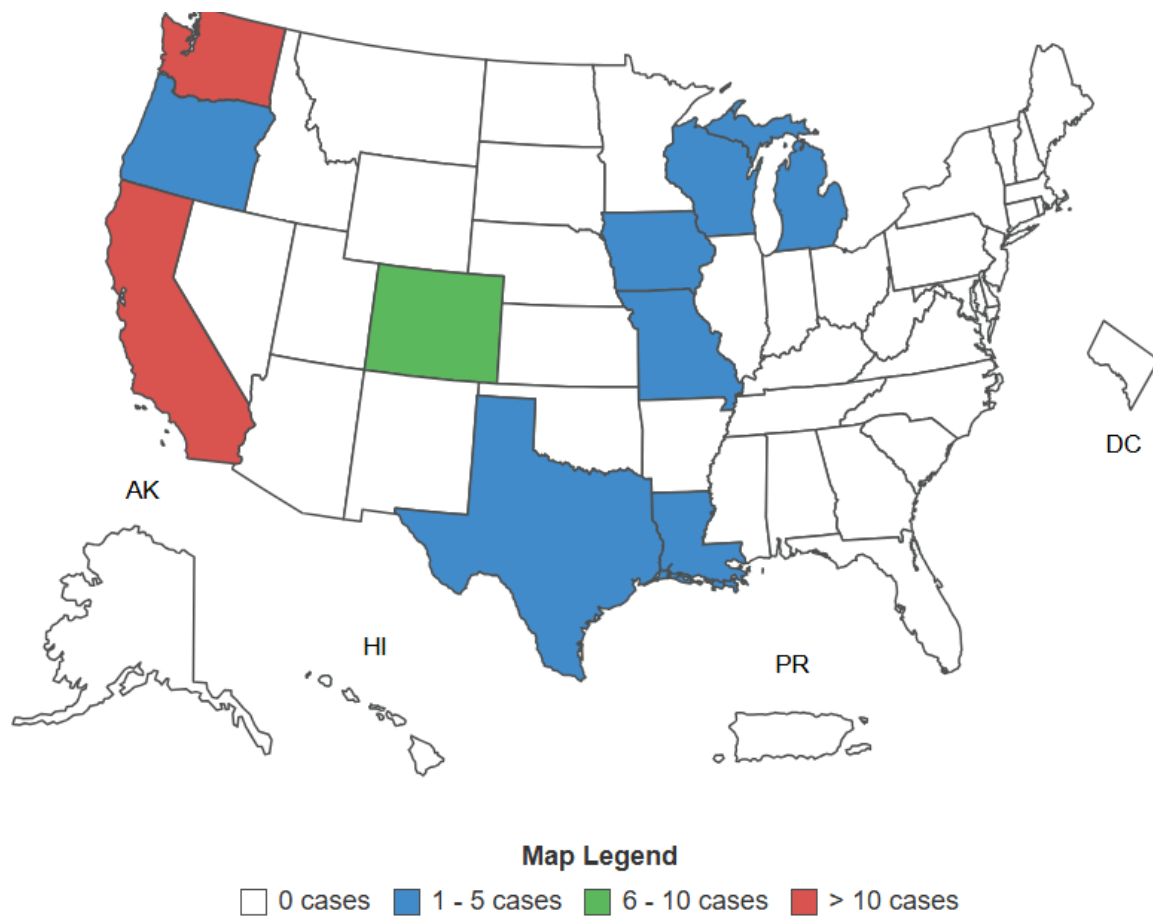
2024 - By November, WHO has recorded 948 confirmed human H5N1, leading to 464 deaths since 2003.

- November, a Canadian teenager, presented with ocular symptoms and develops pneumonia.

- Total U.S. Cases 67, 66 of them since March 2024.

2025 - January first death in the U.S reported

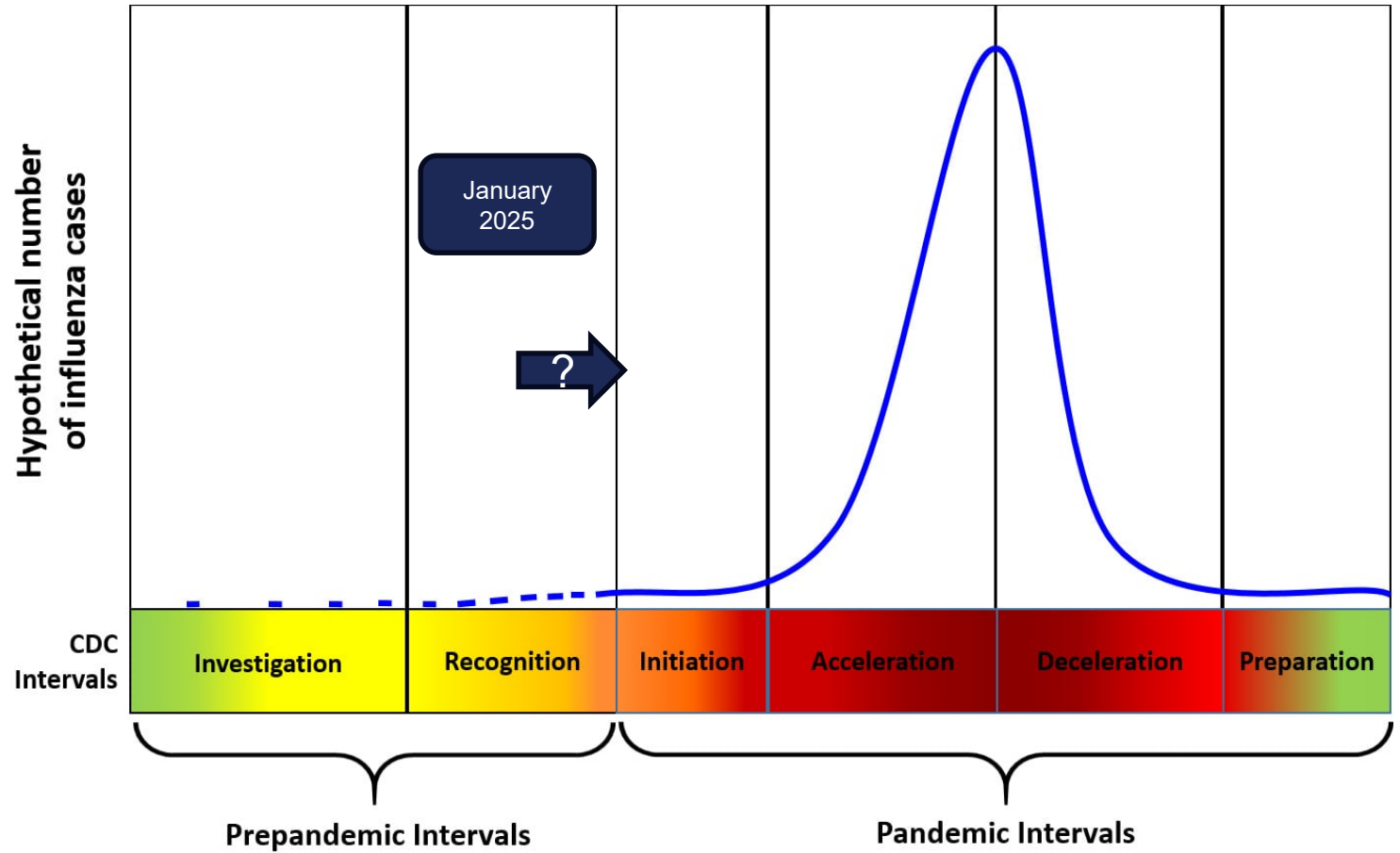
Confirmed Novel Influenza A Virus Human Infections : 2024



Centers for Disease Control and Prevention. (2025, January 27). How CDC is monitoring influenza data among people to better understand the current avian influenza A (H5N1) situation Centers for Disease Control and Prevention <https://www.cdc.gov/bird-flu/h5-monitoring/index.html>

Pandemic Intervals

- **Investigation Interval:**
 - Investigation of Novel Influenza
- **Recognition Interval:**
 - Increased Potential for Ongoing Transmission
- **Initiation Interval:**
 - Initiation of the Pandemic
- **Acceleration Interval:**
 - Acceleration of the Pandemic Wave
- **Deceleration Interval:**
 - Deceleration of the Pandemic Wave
- **Preparation Interval:**
 - Preparation for a Subsequent Pandemic Wave



Risk

At this time, **LOW risk** to the general public health.
Limited human cases from animals, no human-to-human transmission.

- Pandemic potential based on:
- Properties of the virus
 - Attributes of the population
 - Ecology and Epidemiology of the virus

- Answer questions:
- Likelihood of virus causing pandemic
 - Likely impact of the virus

Moderate Pandemic Risk

Influenza Risk Assessment Tool (IRAT) Virus Report
<https://www.cdc.gov/pandemic-flu/media/pdfs/2024/08/IRATATexas.pdf>

Signs/Symptoms

Disease presentation and severity of current virus is different than the 2003-2005 clade.

Current

- Eye redness and irritation (conjunctivitis) approximately 67%.
- Mild respiratory symptoms (sore throat, runny nose, cough) 33%
- Fever, chills, tearing reported
- Severe pneumonia
- One Hospitalized patient reported in December 2024, died January 2025.

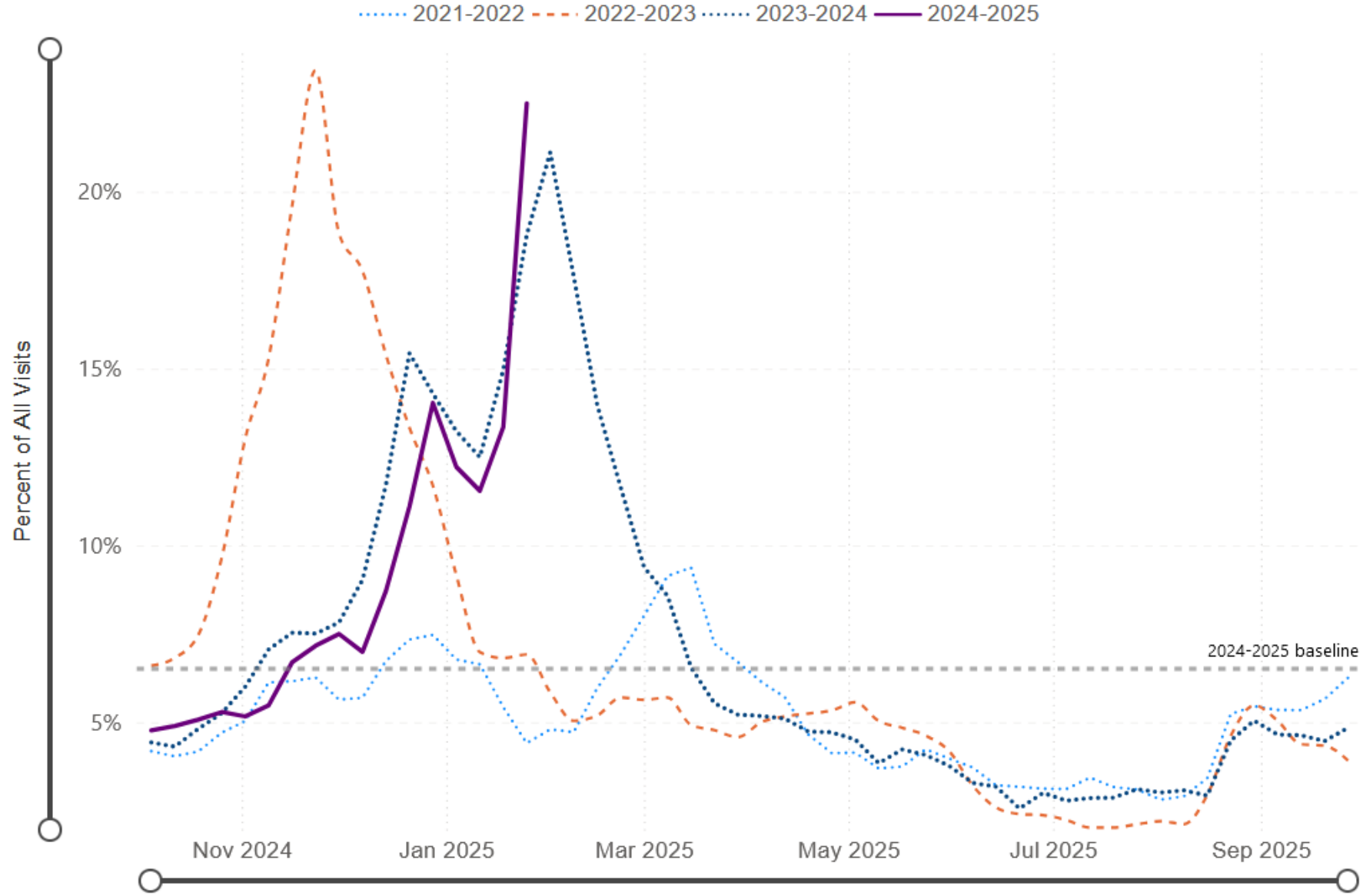
Exposures of Concern

- Direct contact with infected poultry or lactating cows
- Environmental exposure:
- Consumption of contaminated animal products
- Occupational exposure
- Household exposure
- Other factors

Public Health Surveillance

- Monitoring people exposed, >22,800
- Case reporting
- Emergency Departments for unusual trends (syndromic)
- Waste water surveillance
- Testing of positive influenza specimens
- Public health lab testing
 - Routine surveillance testing and typing
 - CDC Health Advisory January 2025 to test hospitalization

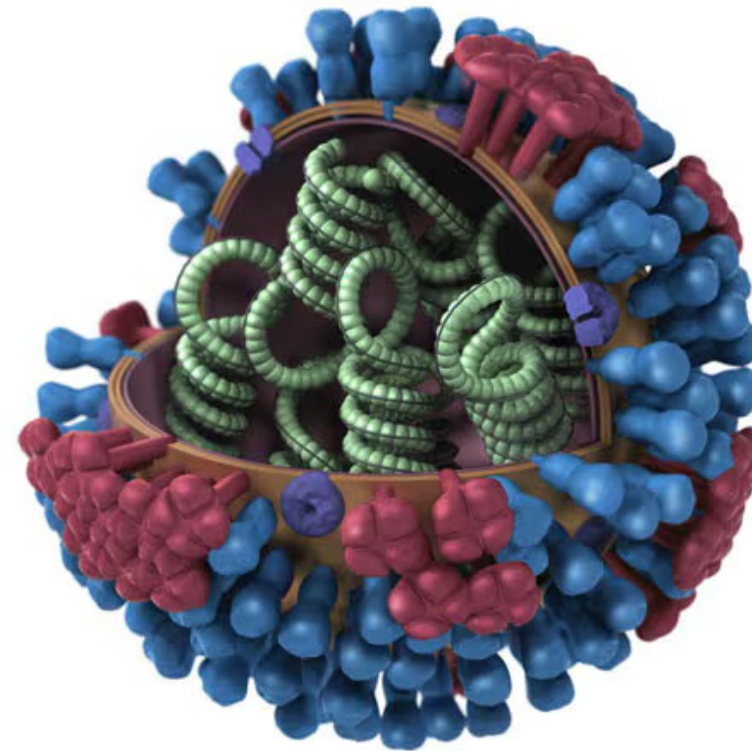
Syndromic Surveillance - Example



Responses

- Lab testing:
 - CDC has worked with reference labs to develop H5 testing. Quest, LabCorp, Arup.
 - Public Health labs have investigational H5 testing. First positive cases would be confirmed at CDC lab.
- Vaccines
 - Several H5N1 vaccines are in the Strategic National Stockpile, though are developed for older strains. Some cross protection to current clade.
 - Newer mRNA vaccines in development with money from HHS. One is preparing for phase 3 studies. Limited and not yet in the Stockpile
- Medications, Antivirals in the Strategic National Stockpile
- PPE, Contact and respiratory PPE
- Continued surveillance/epidemiology identify risk groups

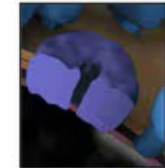
QUESTIONS?



Hemagglutinin



Neuraminidase



M2 Ion Channel



RNP



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Scan the QR code or visit:
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