National Special Pathogen System (NSPS) Region 2 Partner Community

JUNE 20, 2024

NSPS | REGION 2 RESPTC | NYC HEALTH+ HOSPITALS Bellevue

June Partner Community Meeting

1. Welcome & Opening Remarks
2. Region 2 Recent News: H5N1
3. HCID Overview
4. Region 2 Needs Assessment
5. Region 2 Resources and NSPS Branding
6. Q & A

OBJECTIVES

- Discuss recent H5N1 updates and available resources
- Review HCID definition and why it matters
- Summarize the Region 2 Needs Assessment, discuss outcomes, and subsequent areas of focus
- Share new Region 2 Resources available on the website and updated NSPS branding

Recent News | H5N1

H5N1 Outbreak in Dairy Herds

With the recent outbreak of highly pathogenic avian influenza (HPAI) virus A (H5N1) across the U.S., the Region 2 RESPTC team put together the below information for our community. This includes the current status (as of 6/19/2024) as well as key information from various resources.

Current H5N1 Status and Recommendations

- Four reported human cases in the U.S since 2022:
  - Two dairy farm workers in Michigan (2024)
  - A dairy farm worker in Texas (2024)
  - A person exposed to infected poultry in Colorado (2022)
- In New York City, H5N1 has been detected in birds but no human has been needed for testing
- No detections of H5N1 in Dairy Herds any Region 2 state or territory
- NYS has a robust surveillance system to monitor H5N1 in farm animals, poultry markets and person exposed to infected animals
- The virus that has infected humans and cattle has primarily avian genetic characteristics and lacks changes that would make it better able to infect or transmit between humans
- Current H5N1 risk to the public remains low, but
  - PPE should be worn when in direct or close contact with sick or dead animals
  - Unpasteurized (raw) milk or dairy products should not be consumed as viruses are found in milk and mammary tissue of infected animals

Available Resources:

- CDC Current Situation Summary
- CDC Health Advisory
- Clinical Overview of Evaluating and Managing Patients Exposed to Birds Infected with Avian Influenza A Viruses of Public Health Concern | Bird Flu | CDC
- CDC Interim Guidance on Testing

Clinicians should consider H5N1 in a **patient with influenza or influenza-like illness (ILI) and any of the following exposures** in the past 10 days:

- Close contact with potentially infected sick or dead wild or commercial birds or animals
- Direct contact with water or surfaces contaminated by potentially infected sick or dead wild or commercial birds or animals
- Handled or consumed undercooked animals or unpasteurized milk and dairy products

HCID Overview

HCID Overview

On May 17th, our colleague, Dr. Justin Chan presented a presentation on High Consequence Infectious Diseases (HCIDs) and why they matter to the NYU Department of Medicine Grand Rounds.

Definition of a High Consequence Infectious Disease (HCID)

- Note, there is no master list of pathogens, as the list is constantly evolving as new pathogens are discovered
- From the Minnesota Department of Health and NETEC, HCIDs can be defined as the below:
  - "All forms of medical waste are classified as Category A infectious substances (UN2814) by the U.S. Department of Transportation"
  - "Has potential to cause a high mortality among otherwise healthy people and no routine vaccine exists and some types of direct clinical specimens pose generalized risks to laboratory personnel or risk of secondary airborne spread or unknown mode of transmission"

- **Important Characteristics of HCIDs:**
  - Acute infection
  - Pathogen with high morbidity and/or mortality
  - May be difficulty to recognize and detect rapidly
  - Pathogen with high likelihood of secondary cases (person-to-person spread)
  - No effective vaccine, prophylaxis or treatment
  - Requires enhanced individual, population, and systems response

  Sources: UK Health Security Agency; https://www.gov.uk/guidance/high-consequence-infectious-diseases-hcid

- **Broad Categories:**
  - Viral hemorrhagic fevers
  - Severe (highly-pathogenic) respiratory infections
  - Pox viruses

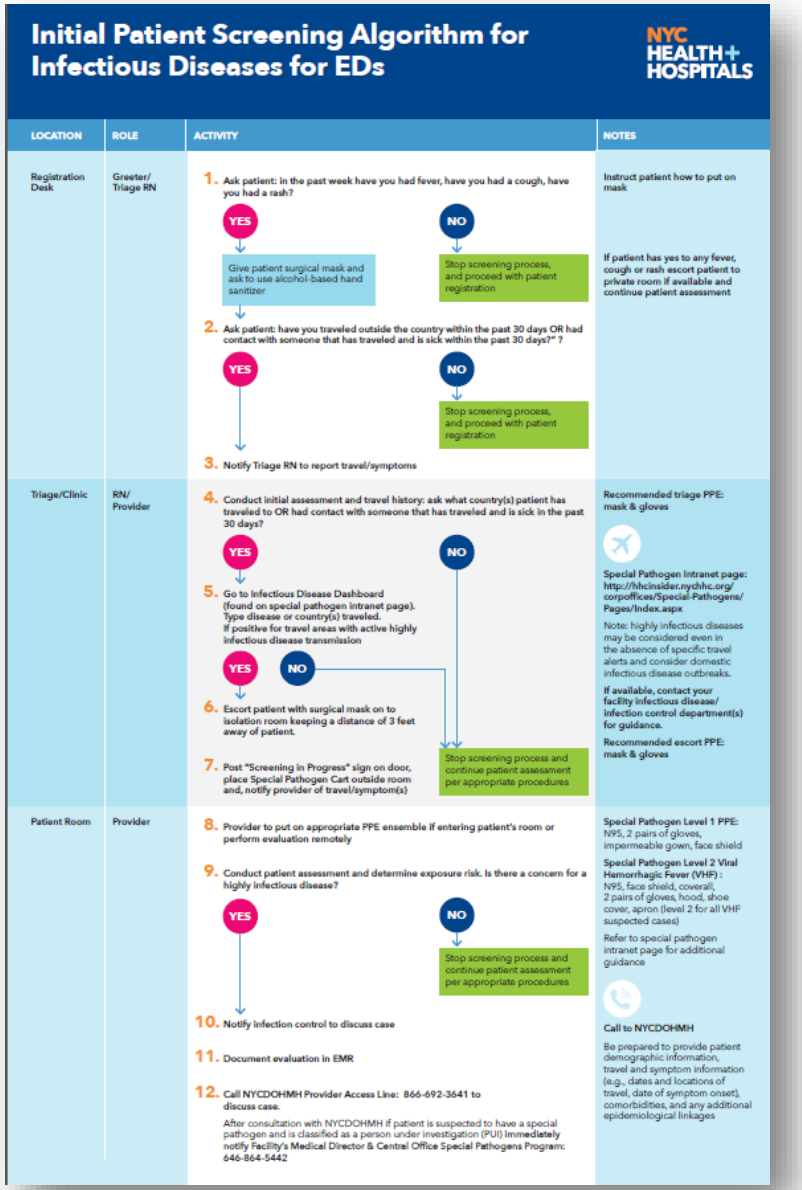
Key Considerations for Prompt Recognition and Initial Management of HCIDs

Below highlights some of the key considerations for prompt recognition and initial management of HCIDs. More resources can be found on the Region 2 RESPTC website.

Challenges associated with initial management of HCIDs

- **Delays in clinical recognition, diagnosis, and isolation:**
  - Clinical findings often non-specific
  - Travel history and risk factors may not be reliably elicited
  - Rare infection often not endemic to a traveler's destination country

- **Identify, Isolate, Inform (I/I/I)**
  - **Initial Isolation – Patient Placement**
    - Single occupancy room
    - Private bathroom
    - Door closed
    - Use airborne infection isolation room if available, and especially if aerosols likely to be generated
  - **Inform**
    - Facility point of contact: infection control and departmental leadership
    - Clarify required PPE ensemble and other infection control measures
    - Public health authority (DOHMH provider access line)



Initial Patient Screening Algorithm for Infectious Diseases for EDs

NYC HEALTH+ HOSPITALS

LOCATION	ROLE	ACTIVITY	NOTES
Registration Desk	Greeter/ Triage RN	1. Ask patient: in the past week have you had fever, have you had a cough, have you had a rash? YES → Give patient surgical mask and ask to use alcohol-based hand sanitizer NO → Stop screening process, and proceed with patient registration 2. Ask patient: have you traveled outside the country within the past 30 days OR had contact with someone that has traveled and is sick within the past 30 days?" ? YES NO → Stop screening process, and proceed with patient registration 3. Notify Triage RN to report travel/symptoms	Instruct patient how to put on mask If patient has yes to any fever, cough or rash escort patient to private room if available and continue patient assessment
Triage/Clinic	RN/ Provider	4. Conduct initial assessment and travel history: ask what country(s) patient has traveled to OR had contact with someone that has traveled and is sick in the past 30 days? YES NO → Stop screening process and continue patient assessment per appropriate procedures 5. Go to Infectious Disease Dashboard (found on special pathogen intranet page). Type disease or country(s) traveled. If positive for travel areas with active highly infectious disease transmission YES NO 6. Escort patient with surgical mask on to isolation room keeping a distance of 3 feet away of patient. 7. Post "Screening in Progress" sign on door, place Special Pathogen Cart outside room and, notify provider of travel/symptom(s)	Recommended triage PPE: mask & gloves Special Pathogen Intranet page: http://hhcinsider.nychhc.org/corpoffices/Special-Pathogens/Pages/Index.aspx Note: highly infectious diseases may be considered even in the absence of specific travel alerts and consider domestic infectious disease outbreaks. If available, contact your facility infectious disease/ infection control department(s) for guidance. Recommended escort PPE: mask & gloves
Patient Room	Provider	8. Provider to put on appropriate PPE ensemble if entering patient's room or perform evaluation remotely 9. Conduct patient assessment and determine exposure risk. Is there a concern for a highly infectious disease? YES NO → Stop screening process and continue patient assessment per appropriate procedures 10. Notify infection control to discuss case 11. Document evaluation in EMR 12. Call NYCDOHMH Provider Access Line: 866-692-3641 to discuss case. After consultation with NYCDOHMH if patient is suspected to have a special pathogen and is classified as a person under investigation (PUI) Immediately notify Facility's Medical Director & Central Office Special Pathogens Program: 646-864-5442	Special Pathogen Level 1 PPE: N95, 2 pairs of gloves, impermeable gown, face shield Special Pathogen Level 2 Viral Hemorrhagic Fever (VHF) : N95, face shield, coverall, 2 pairs of gloves, hood, shoe cover, apron (level 2 for all VHF suspected cases) Refer to special pathogen intranet page for additional guidance Call to NYCDOHMH Be prepared to provide patient demographic information, travel and symptom information (e.g., dates and locations of travel, date of symptom onset), comorbidities, and any additional epidemiological linkages

Models of Care for Management of HCIDs

Below highlights the models of care for management. More resources can be found on the Region 2 RESPTC website.

Models of Care

- **Role of a Biocontainment Unit (BCU)**
  - A healthcare facility or unit designed to provide safe, secure, high quality and appropriate care with optimal infection prevention and control procedures to a small number of patients with suspected or confirmed HCID
  - Keeps other patients, healthcare workers, and the public safe
  - Facilitates the use of techniques and standards that are above and beyond normal function in the hospital setting
  - Sources: (1) Bannister B et al. Lancet Infect Dis 2009;9(1):45-56; (2) Smith PW et al. Biosecur Bioterror 2006;4(4):351-65.

- **When Do We Utilize a BCU?**
  - Ideal for limited outbreaks of HCIDs
  - Limited resource (2 beds at Bellevue, ~55 in U.S.)
  - Capacity can quickly be overwhelmed by pandemics - surge capacity required

- **Use of Telemedicine**
  - Reduce exposures by allowing communication and monitoring
  - Healthcare providers in the BCU
    - Observe for breaches in infection control
  - Patient and staff outside BCU
    - Facilitate patient transfers
  - Consultation by physician not trained in PPE
  - Family and other services to provide remote support
  - Allow students and learners to be involved

Source: Gossen A et al. Ann Am Thorac Soc 2020;17(6):673-678.

Region 2 Needs Assessment

Approach

Our team is continually creating new ways to solicit feedback and create a more well-rounded and stronger Region 2 community.

KEY ACTIVITIES

NETEC SURVEY

February 2024

- ✓ Sent the NETEC Needs Assessment survey to **500+ from the Partner Community**
- ✓ From Region 2, **50** people responded (~10% response rate)

REGION 2 FOCUS GROUPS

May 2024

- ✓ Conducted **two** focus groups with **10** delegates
- ✓ Jurisdictions Represented:
  - ✓ New Jersey: 40%
  - ✓ New York: 20%
  - ✓ Puerto Rico: 20%
  - ✓ USVI: 20%

REGION 2 CAG

May 2023 - Present

- ✓ Founded the Core Advisory Group (CAG) comprised of 20+ experts representing all Region 2 jurisdictions and the Federal government

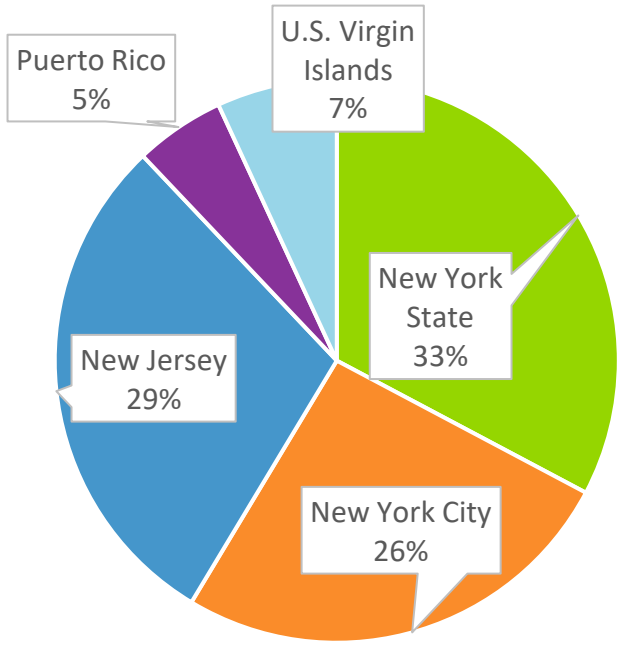
RESPTC Needs Assessment Demographics

Below outlines the demographics for participants of both the NETEC Needs Assessment Survey and Region 2 Focus Groups.

60 REGION 2 PARTNERS PARTICIPATED

~20 REGION 2 CORE ADVISORY MEMBERS PARTICIPATED

GEOGRAPHIC REPRESENTATION



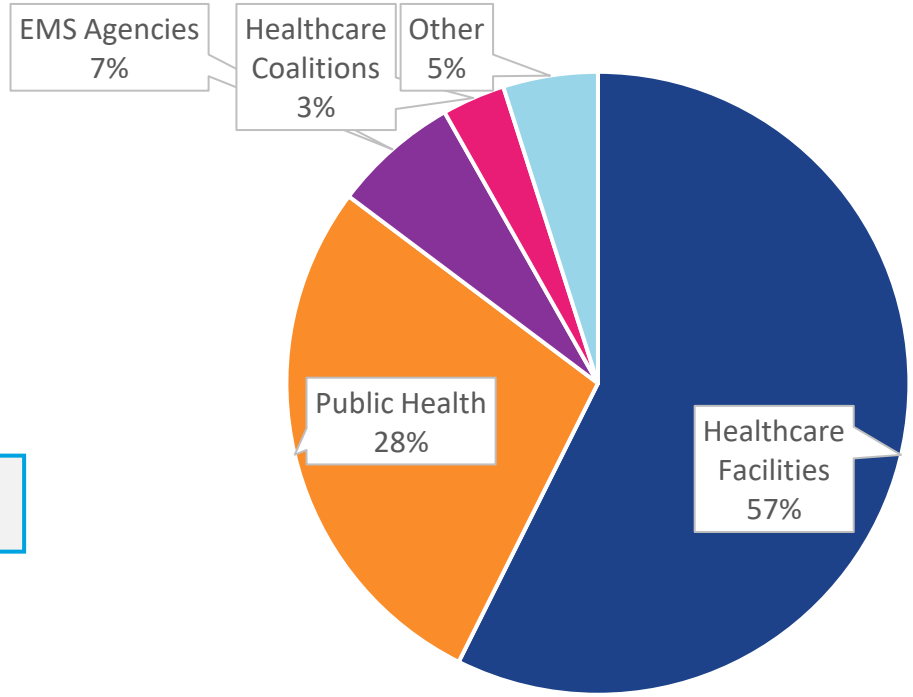
SAMPLE ORGS REPRESENTED

- U.S. Virgin Islands Department of Health
- ASPR
- Stony Brook Hospital
- University Hospital
- Robert Wood Johnson Hospital
- Puerto Rico Department of Health
- University of Rochester

SAMPLE TITLES

- Director of Nursing
- Infection Prevention Director
- Chief Medical Officer
- Ambulatory Care Chief
- Regional Emergency Coordinator
- Regional Coalition Manager
- Director of Emergency Management

HEALTHCARE CATEGORIES REPRESENTED



Takeaways by Topic

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Training

BY THE NUMBERS

77%
Of the respondents noted
Current barriers include availability of facilitators or location to host training, funding, or expertise to develop the curriculum

79%
Of the respondents noted
Their organization has a special pathogens plan, policy, or an annex in your organizations Emergency Operations Plan (EOP)

45%
Of the respondents noted
Their organizations have not exercised within the last 1-3 years or unaware it has been exercised at all.

REGION 2 CHALLENGE:

Like many healthcare facilities and other regions, Region 2 faces many challenges with high-staff turnover and low tenure of staff. This also leads to difficulties with availability of facilitators to host a training or expertise to develop the curriculum.

Proposed Solution

- Develop a training repository with links to key Region 2 and NETEC trainings
- Create a list of Region 2 facilitators to develop and lead trainings
- Draft a training plan that includes both virtual and in-person trainings across the region

Requested Training Topics

- Donning and Doffing of PPE
- Just-In-Time Training
- Hard Science Webinars
- Developing HCID Patient Care Protocols
- Environmental Cleaning
- Leadership or Director-specific Training

Communications

100%
Of the respondents noted
They prefer **monthly email** communications

48%
Of the respondents noted
They prefer unbranded educational materials to share with their organizations

45%
Of the respondents noted
They would also like information via **webinar or podcast**

REGION 2 CHALLENGE:
Communication often flows in one direction, meaning our team must take very intentional steps if we want to hear from our community. Our team needs to find ways to create bi-directional communication paths.

Proposed Solution

- Work with both local representatives and ASPR to share information in other languages
- Find avenues to create feedback platforms (i.e. newsletter or comments section on the website)
- Cross-promote resources from both NETEC and local DOHs

CONOPs

60%
Of the respondents noted
They do not know how to access their State or Regional CONOPs

73%
Of the respondents noted
They have either never participated in an exercise to test the state CONOPs or participated more than a year ago

80%
Of the respondents noted
They were only somewhat familiar with the Region 2 CONOPs

REGION 2 CHALLENGE:
There is a lack of familiarity or understanding of both the state and regional CONOPs. Furthermore, many Region 2 leaders were not able to participate in the tabletop exercises or focus groups to update the Region 2 plan

Proposed Solution

- Develop a socialization plan to promote the Region 2 CONOPs once finalized
- Work with local representatives to promote the plan
- Host both a webinar and tabletop exercise to walkthrough the CONOPs and its updates from the 2017 version

Key Action Items

Below outlines a summarized list of action items following feedback from the Needs Assessment Survey and Region 2 Focus Groups.

TRAINING

Action Items

1.1 Develop a training repository with links to key Region 2 and NETEC trainings

1.2 Create a list of Region 2 facilitators to develop and lead trainings

1.3 Draft a training plan that includes both virtual and in-person trainings across the region

COMMUNICATIONS

Action Items

2.1 Work with both local representatives and ASPR to share information in other languages

2.2 Find avenues to create feedback platforms (i.e. newsletter or comments section on the website)

2.3 Cross-promote resources from both NETEC and local DOHs

CONOPS

Action Items

3.1 Develop a socialization plan to promote the Region 2 CONOPs once finalized

3.2 Work with local representatives to promote the plan

3.3 Host both a webinar and tabletop exercise to walkthrough the CONOPs and its updates from the 2017 version

Region 2 Resources and NSPS Branding

REGION 2 RESOURCES

Region 2 Trainings, including the Region 2 Joint Standards Webinar and the Partner Community meeting recordings

Repository of the Region 2 RESPTC Newsletters

NETEC Readiness consultations, including facility visits

NETEC Expertise to help facilities prepare for Ebola and other special pathogens

The Region 2 website is a one-stop shop for Region 2 resources, tools, and training materials. If there is any materials you would like to see on the website, please email Alyssa Wong at alyswong@deloitte.com.

NEW: NSPS Logos

The National Special Pathogen System (NSPS) officially launched a new brand and logo in June.

NSPS

PREPARE. PROTECT. RESPOND.

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NSPS Logo

The National Special Pathogen System (NSPS) launched their new logo this month! The new logo reflects the goals for the NSPS to: "**Prepare** the health care system, **Protect** the health care workforce, and **Respond** to special pathogen events by coordinating special pathogen care across the United States."

Q&A and Closeout

Appendix

Avian Influenza - Update

NYC Department of Health and Mental Hygiene

June 18, 2024

Influenza A Viruses

- Classified into subtypes based on 2 main surface glycoproteins
  - **H** = Hemagglutinin and **N** = Neuraminidase
  - 18 **H** subtypes and 11 **N** subtypes –
- Multiple combinations
  - Almost all found in wild birds

- Each combination is considered a different **subtype**
  - **H5N1**
  - **H7N2**

- Further broken down into
  - +/ Lineages
  - Clade
    - 2.3.4.4b
  - Sub-Clades (*Genotype*)

Classified as **Highly Pathogenic** (HPAI) or **Low Pathogenic** (LPAI)

- Based on molecular and pathogenicity criteria
- HPAI threat to agriculture worldwide
- Many different animal species can be infected

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- HPAI threat to agriculture worldwide
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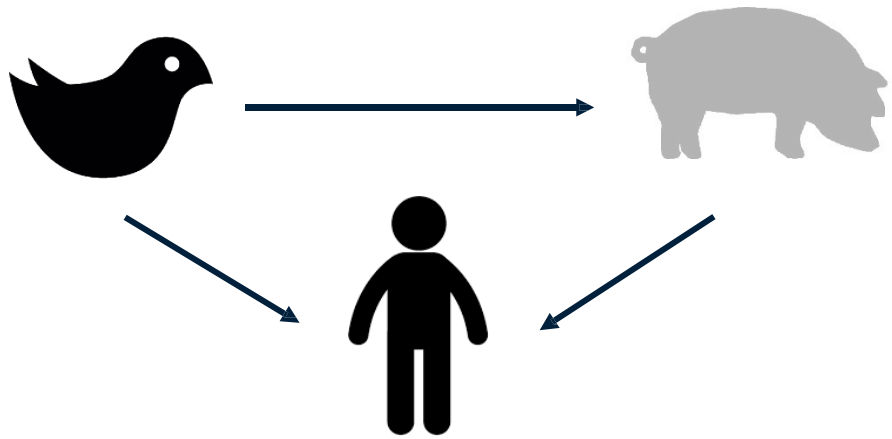
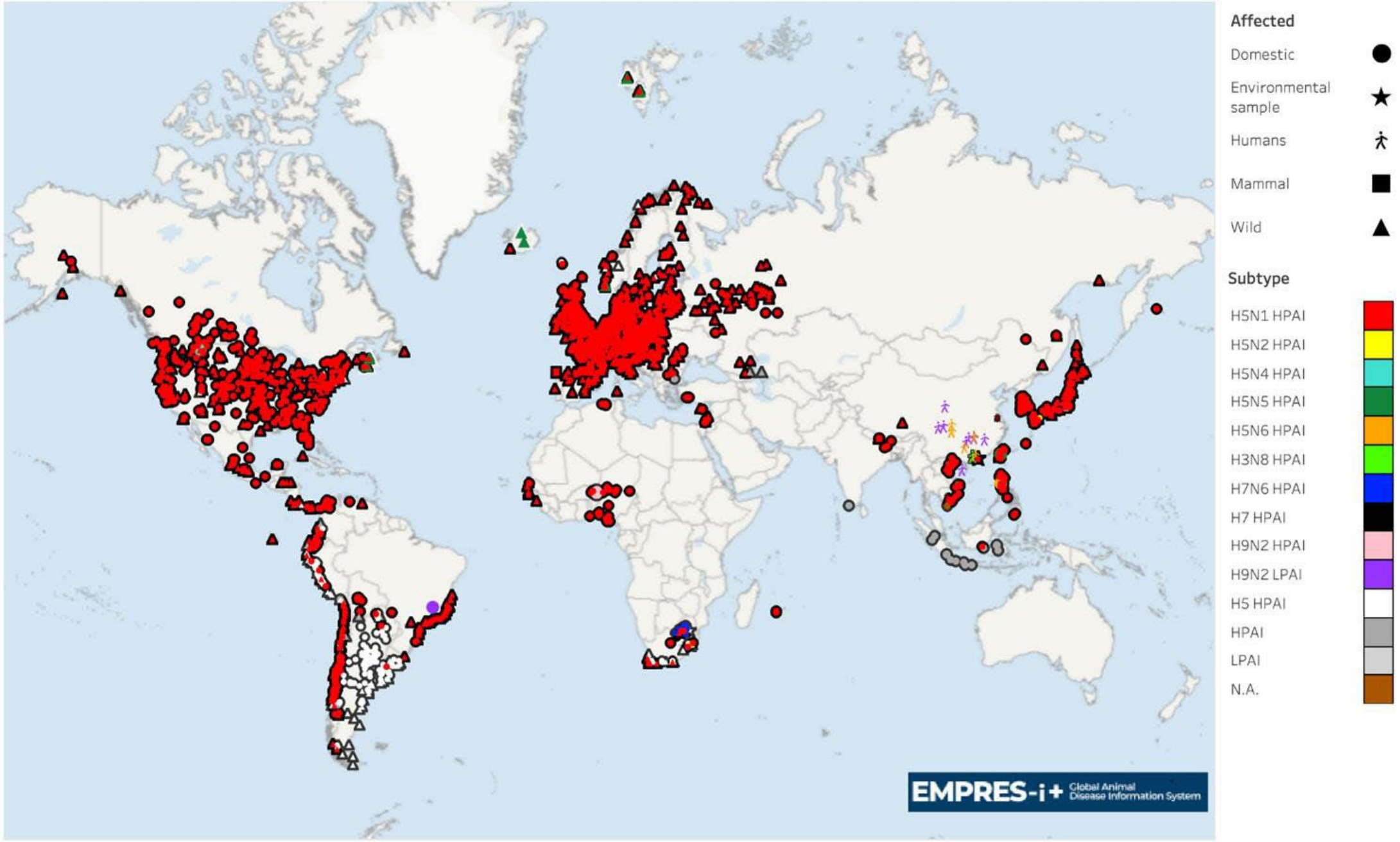
Transmission of Avian Influenza A Viruses Between Animals and People

- Birds are hosts to almost all known subtypes of influenza A viruses
- These viruses can occasionally cross the species barrier
- Pandemics in humans can occur when a new virus is introduced to a naïve human population and gains the ability to have sustained transmission among people



Confirmed Avian influenza events worldwide from 1 October 2022 to 30 September 2023

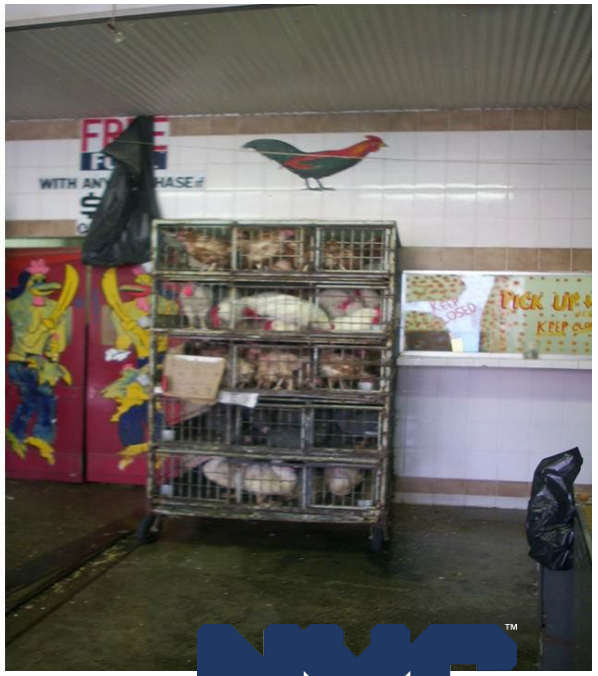


https://www.fao.org/animal-health/situation-updates/global-aiv-with-zoonotic-potential/en

Live Birds Markets – NYC

Surveillance

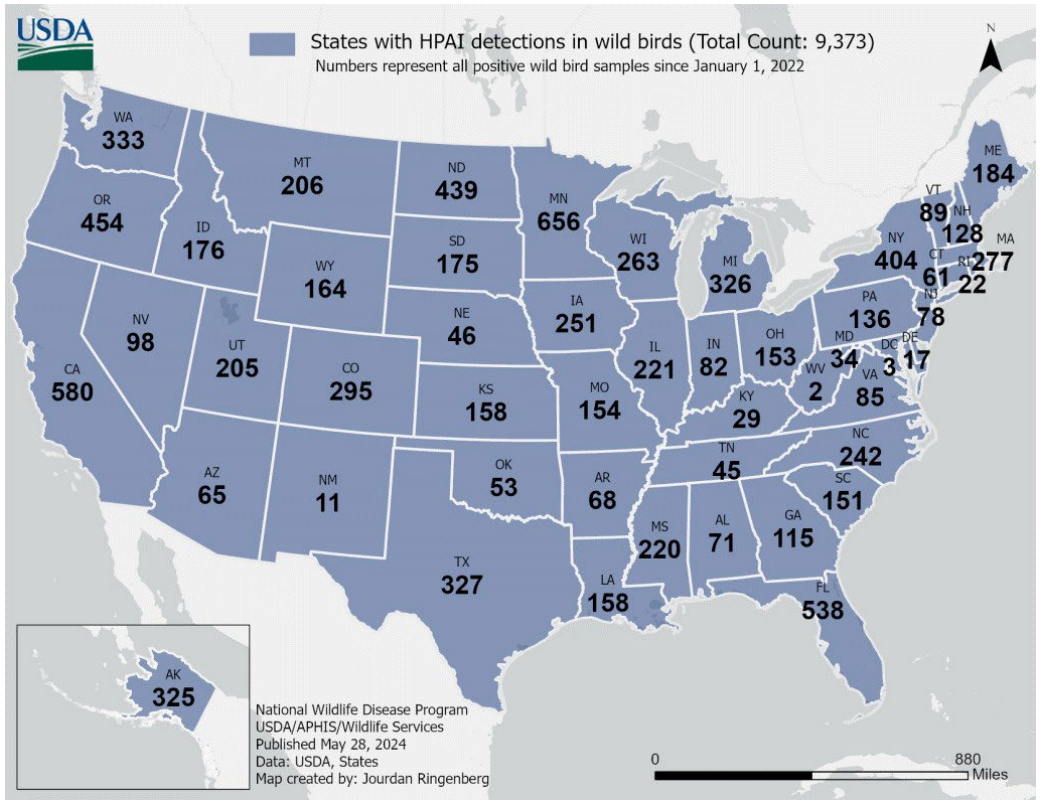
- 80-90 Live Bird Markets
- Custom slaughter
- Regulated by NYS Dept of Agriculture and Markets
- Thousands of birds enter market from farms in surrounding area
- Routine testing of birds before entering NYC; additional sampling done in markets



Health

Wild or Captive Birds - NYC

Surveillance 2022-2024 YTD

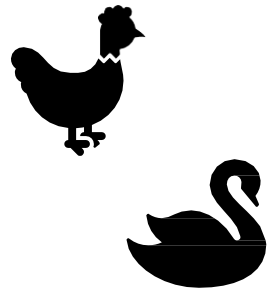


https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections

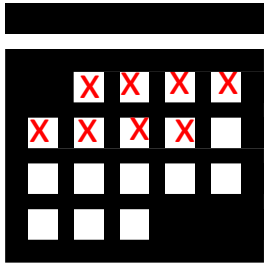
NYC Health

People Exposed to H5N1 - NYC

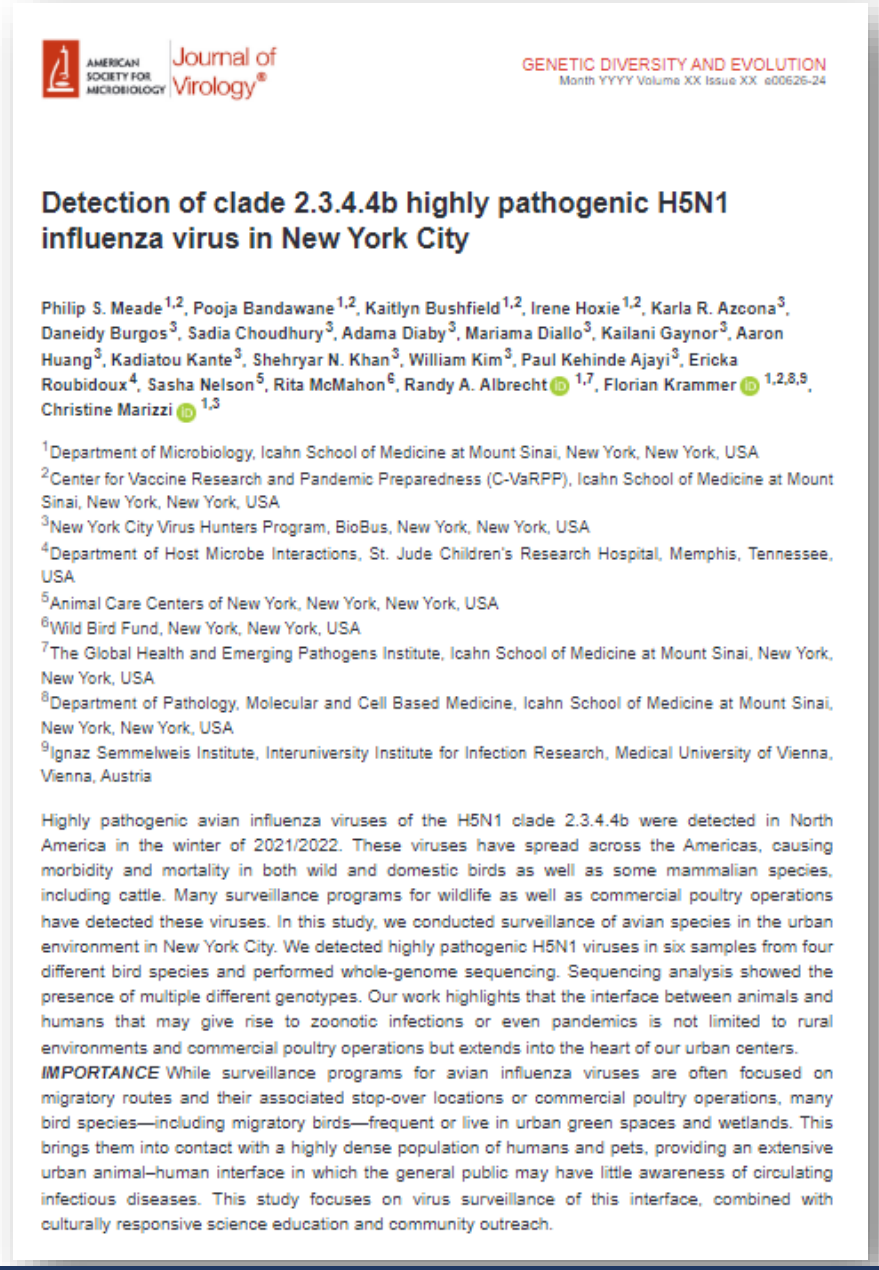
Surveillance 2022-2024 YTD



- NYC DOHMH notified of H5N1 detections in birds and animals
- Oversee symptom monitoring of persons with exposure to infected birds
  - 10-day period that begins after last exposure
  - Arrange for testing if person develops illness – low threshold



- Approximately 40 to 50 birds that tested positive for H5N1
  - No persons developed illness; no testing done



AMERICAN SOCIETY FOR MICROBIOLOGY | Journal of Virology®

GENETIC DIVERSITY AND EVOLUTION
Month YYYY Volume XX Issue XX e00626-24

Detection of clade 2.3.4.4b highly pathogenic H5N1 influenza virus in New York City

Philip S. Meade[1,2], Pooja Bandawane[1,2], Kaitlyn Bushfield[1,2], Irene Hoxie[1,2], Karla R. Azcona[3], Daneidy Burgos[3], Sadia Choudhury[3], Adama Diaby[3], Mariama Diallo[3], Kailani Gaynor[3], Aaron Huang[3], Kadiatou Kante[3], Shehryar N. Khan[3], William Kim[3], Paul Kehinde Ajayi[3], Ericka Roubidoux[4], Sasha Nelson[5], Rita McMahon[6], Randy A. Albrecht[1,7], Florian Krammer[1,2,8,9], Christine Marizzi[1,3]

[1]Department of Microbiology, Icahn School of Medicine at Mount Sinai, New York, New York, USA
[2]Center for Vaccine Research and Pandemic Preparedness (C-VaRPP), Icahn School of Medicine at Mount Sinai, New York, New York, USA
[3]New York City Virus Hunters Program, BioBus, New York, New York, USA
[4]Department of Host Microbe Interactions, St. Jude Children's Research Hospital, Memphis, Tennessee, USA
[5]Animal Care Centers of New York, New York, New York, USA
[6]Wild Bird Fund, New York, New York, USA
[7]The Global Health and Emerging Pathogens Institute, Icahn School of Medicine at Mount Sinai, New York, New York, USA
[8]Department of Pathology, Molecular and Cell Based Medicine, Icahn School of Medicine at Mount Sinai, New York, New York, USA
[9]Ignaz Semmelweis Institute, Interuniversity Institute for Infection Research, Medical University of Vienna, Vienna, Austria

Highly pathogenic avian influenza viruses of the H5N1 clade 2.3.4.4b were detected in North America in the winter of 2021/2022. These viruses have spread across the Americas, causing morbidity and mortality in both wild and domestic birds as well as some mammalian species, including cattle. Many surveillance programs for wildlife as well as commercial poultry operations have detected these viruses. In this study, we conducted surveillance of avian species in the urban environment in New York City. We detected highly pathogenic H5N1 viruses in six samples from four different bird species and performed whole-genome sequencing. Sequencing analysis showed the presence of multiple different genotypes. Our work highlights that the interface between animals and humans that may give rise to zoonotic infections or even pandemics is not limited to rural environments and commercial poultry operations but extends into the heart of our urban centers.

IMPORTANCE While surveillance programs for avian influenza viruses are often focused on migratory routes and their associated stop-over locations or commercial poultry operations, many bird species—including migratory birds—frequent or live in urban green spaces and wetlands. This brings them into contact with a highly dense population of humans and pets, providing an extensive urban animal–human interface in which the general public may have little awareness of circulating infectious diseases. This study focuses on virus surveillance of this interface, combined with culturally responsive science education and community outreach.

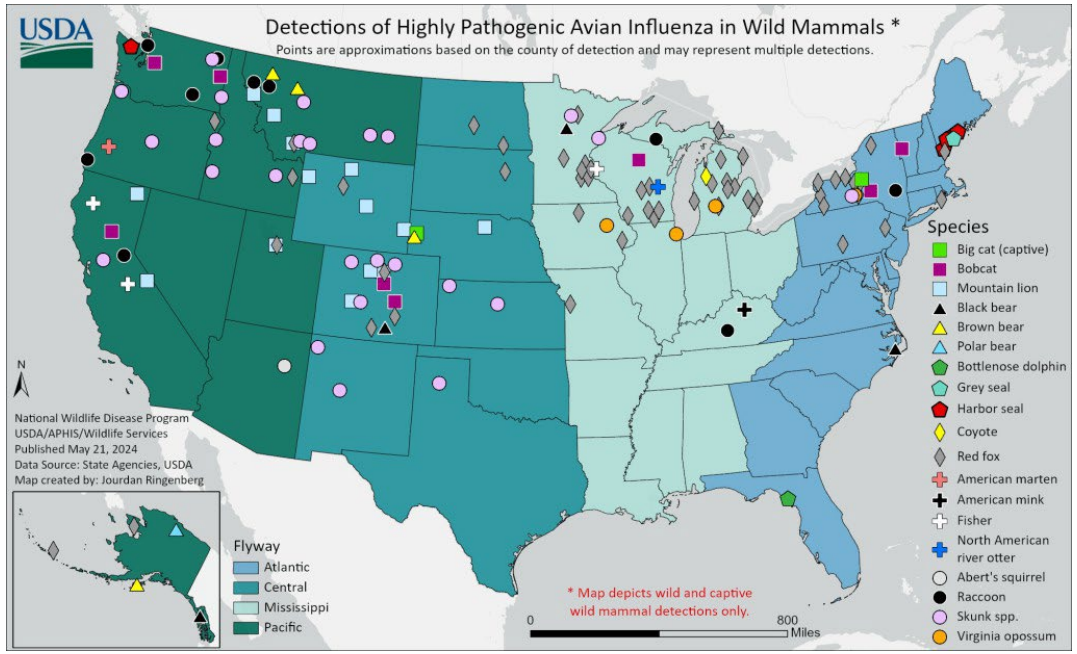
Canada goose (3)
Red tailed hawk (1)
Peregrine falcon (1)
Chicken (1)

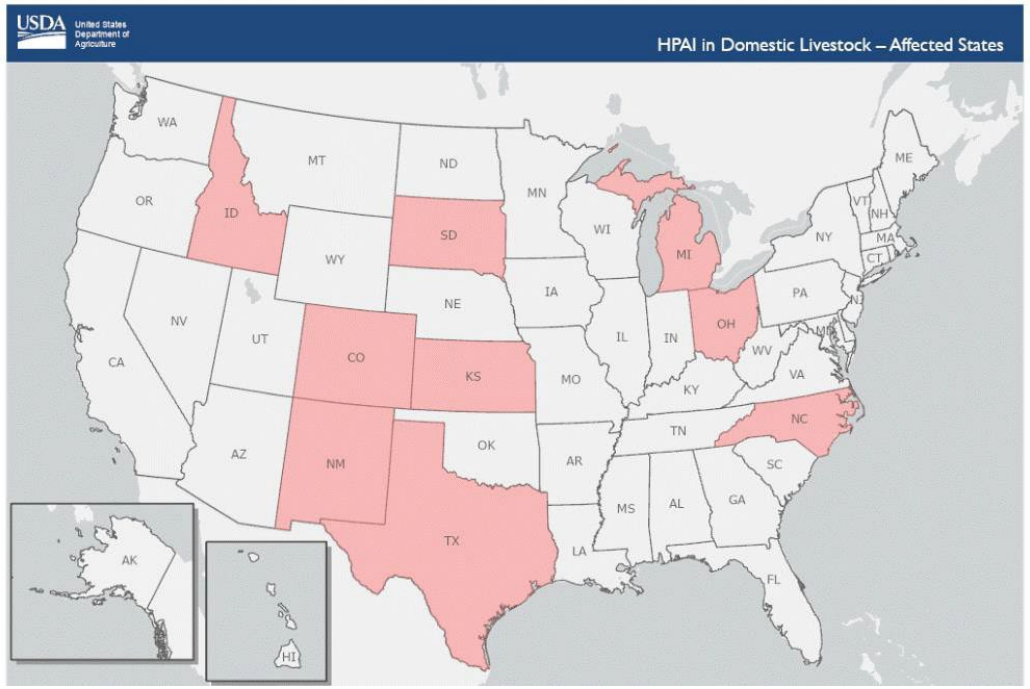
DOI: https://doi.org/10.1128/jvi.00626-24

NYC Health

Mammals and Dairy Cattle

Surveillance 2022-2024 YTD





New York State:
Red fox, skunk, opossum, bobcat, raccoon, leopard

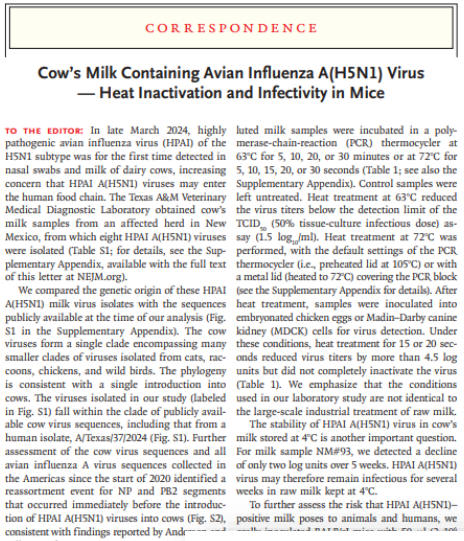
Not yet updated to include MN, IA, and WY

https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections

NYC Health

H5N1 in Dairy Cattle and Milk

- Lots of virus in milk of affected cows
- Transmission to cattle on other farms via people, fomites, other animals
- FDA study found viral RNA fragments in multiple pasteurized dairy products from the commercial market
  - NONE had viable virus



CORRESPONDENCE

Cow's Milk Containing Avian Influenza A(H5N1) Virus — Heat Inactivation and Infectivity in Mice

TO THE EDITOR: In late March 2024, highly pathogenic avian influenza virus (HPAI) of the H5N1 subtype was for the first time detected in nasal swabs and milk of dairy cows, increasing concern that HPAI A(H5N1) viruses may enter the human food chain. The Texas A&M Veterinary Medical Diagnostic Laboratory obtained cow's milk samples from an affected herd in New Mexico, from which eight HPAI A(H5N1) viruses were isolated (Table S1; for details, see the Supplementary Appendix, available with the full text of this letter at NEJM.org).

We compared the genetic origin of these HPAI A(H5N1) milk virus isolates with the sequences publicly available at the time of our analysis (Fig. S1 in the Supplementary Appendix). The cow viruses form a single clade encompassing many smaller clades of viruses isolated from cats, raccoons, chickens, and wild birds. The phylogeny is consistent with a single introduction into cows. The viruses isolated in our study (labeled in Fig. S1) fall within the clade of publicly available cow virus sequences, including that from a human isolate, A/Texas/37/2024 (Fig. S1). Further assessment of the cow virus sequences and all avian influenza A virus sequences collected in the Americas since the start of 2020 identified a reassortment event for NP and PB2 segments that occurred immediately before the introduction of HPAI A(H5N1) viruses into cows (Fig. S2), consistent with findings reported by Andr… colleagues.[1]

Studies involving foot-and-mouth dis… revealed that heat inactivation of viru… milk samples required higher tempe… longer incubation times (or both) than… activation of virus spiked into milk,[2,3] pe… because fat globules and casein mice… partly protect viruses in virus-posit… samples. Accordingly, we tested heat ina… of four HPAI A(H5N1) virus–positive r… ples (NM#93, NM#115, KS#3, and KS#…

luted milk samples were incubated in a polymerase-chain-reaction (PCR) thermocycler at 63°C for 5, 10, 20, or 30 minutes or at 72°C for 5, 10, 15, 20, or 30 seconds (Table 1; see also the Supplementary Appendix). Control samples were left untreated. Heat treatment at 63°C reduced the virus titers below the detection limit of the $TCID_{50}$ (50% tissue-culture infectious dose) assay (1.5 $\log_{10}$/ml). Heat treatment at 72°C was performed, with the default settings of the PCR thermocycler (i.e., preheated lid at 105°C) or with a metal lid (heated to 72°C) covering the PCR block (see the Supplementary Appendix for details). After heat treatment, samples were inoculated into embryonated chicken eggs or Madin–Darby canine kidney (MDCK) cells for virus detection. Under these conditions, heat treatment for 15 or 20 seconds reduced virus titers by more than 4.5 log units but did not completely inactivate the virus (Table 1). We emphasize that the conditions used in our laboratory study are not identical to the large-scale industrial treatment of raw milk.

The stability of HPAI A(H5N1) virus in cow's milk stored at 4°C is another important question. For milk sample NM#93, we detected a decline of only two log units over 5 weeks. HPAI A(H5N1) virus may therefore remain infectious for several weeks in raw milk kept at 4°C.

To further assess the risk that HPAI A(H5N1)–positive milk poses to animals and humans, we

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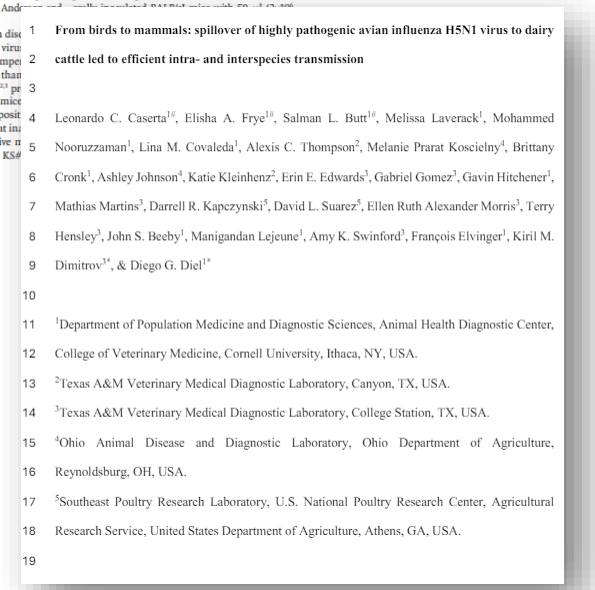

From birds to mammals: spillover of highly pathogenic avian influenza H5N1 virus to dairy cattle led to efficient intra- and interspecies transmission

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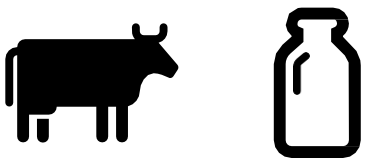
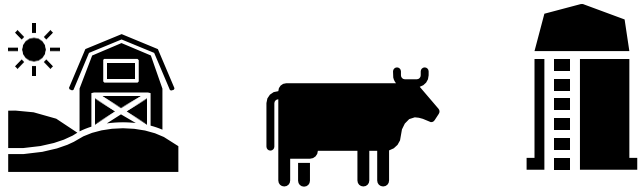


https://www.biorxiv.org/content/biorxiv/early/2024/05/22/2024.05.22.595317.full.pdf

NYC Health

New York Dairy

- ~ 2,900 dairy cattle farms – none in NYC
- Raw milk may only be sold at dairy farms that hold a permit from the NYS Department of Agriculture and Markets
  - Permitted farms required to maintain proper sanitation, animal health, packaging procedures, routine inspections, sampling and testing, and post signs that warn that raw milk does not provide the protection of pasteurization



Transmission

- Influenza A viruses infect the respiratory and gastrointestinal tracts of birds causing birds to shed the virus in their saliva, mucous, and feces
- Other animals may have virus present in respiratory secretions, different organs, blood, or in other body fluids, including animal milk
- No human-to-human transmission

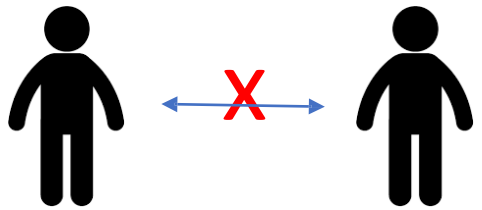


Table 1. Global reported A(H5N1) human cases, January 2022 through April 25, 2024

Country of Case	Month of illness onset or case detection	Disease Severity and Outcome	Virus Clade by sequencing or associated poultry outbreaks
Chile	March 2023	Critical illness, survived	Clade 2.3.4.4b
China	September 2022	Critical illness, died	Clade 2.3.4.4b
	January 2023	Severe illness, outcome not reported	Clade 2.3.4.4b
Ecuador	December 2022	Critical illness, survived	Clade 2.3.4.4b
Spain	September 2022	Asymptomatic	Clade 2.3.4.4b
	October 2022	Asymptomatic	Clade 2.3.4.4b
United Kingdom	January 2022	Asymptomatic	Clade 2.3.4.4b
	May 2023	Asymptomatic	Clade 2.3.4.4b
	May 2023	Asymptomatic	Clade 2.3.4.4b
	July 2023	Asymptomatic	Clade 2.3.4.4b
	July 2023	Asymptomatic	Clade 2.3.4.4b
United States	April 2022	Mild illness (fatigue)	Clade 2.3.4.4b
	March 2024	Mild illness (conjunctivitis)	Clade 2.3.4.4b
	May 2024	Mild illness (conjunctivitis)	Clade 2.3.4.4b
	May 2024	Mild illness	Clade 2.3.4.4b

https://www.cdc.gov/bird-flu/php/technical-report/h5n1-06052024.html?CDC_AAref_Val=https://www.cdc.gov/flu/avianflu/spotlights/2023-2024/h5n1-technical-report-06052024.htm#cdc_research_or_data_summary_explore_more-human-cases-of-ah5n1

Four human infections in US

- CO – turkey depopulation
- TX and MI (2) – dairy farm workers

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NYC Health

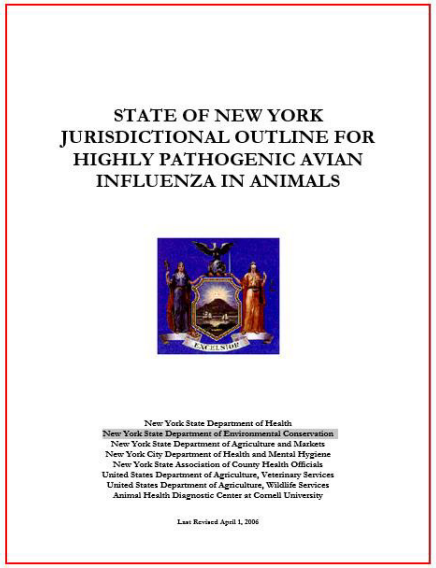
Low Risk to Humans

- CDC Technical Analysis updated May 24, 2024
  - https://www.cdc.gov/flu/avianflu/spotlights/2023-2024/h5n1-technical-update-may-24-2024.html
- Supports the conclusion that the overall risk to the general public associated with the ongoing HPAI A(H5N1) outbreak has not changed and remains **low** at this time
- The genome of the virus identified from the patient in Michigan (A/Michigan/90/2024) publicly posted in GISAID (EPI_ISL_19162802) and has been submitted to GenBank (PP839258-PP839265)

NYC Health

NYC – Experience with Avian Influenza

- Preparedness H5N1 past clades 2006
  - Planning and table-top exercises to address detection of H5N1 in live bird markets
- H1N1 Response
  - Detected in NYC, April 2009, among high school students returning from trip to Mexico
- Low pathogenic avian influenza virus in poultry
  - Detections in poultry at LBMs led to comprehensive changes to distribution system to improve biosecurity and infection control
  - Routinized system that has been in place for decades to remove and clean affected markets
- Rapid response to detection of avian influenza in new species
  - H7N2 detected in cats in NYC shelter



STATE OF NEW YORK
JURISDICTIONAL OUTLINE FOR
HIGHLY PATHOGENIC AVIAN
INFLUENZA IN ANIMALS

New York State Department of Health
New York State Department of Environmental Conservation
New York State Department of Agriculture and Markets
New York City Department of Health and Mental Hygiene
New York State Association of County Health Officials
United States Department of Agriculture, Veterinary Services
United States Department of Agriculture, Wildlife Services
Animal Health Diagnostic Center at Cornell University

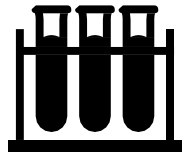
Last Revised April 1, 2006

Avian Influenza Preparedness and Response Activities

- Multiple planning meetings with Agency partners
  - USDA, NYS DAM, NYC Parks, other partners
- Overview and planning ongoing for the eventuality of potential HPAI (livestock and human) in NY
  - Training materials being developed
    - Webinar for farm workers, flyers, info on testing, treatment, isolation, contact investigation, prophylaxis, and PPE recommendations
- Enhanced laboratory surveillance due to H5N1 this summer

Pandemic Influenza Preparedness

- Tools and resources in place
  - Commercially available test
  - Candidate vaccines
  - Antiviral therapies
- Global influenza surveillance program
  - Routine surveillance and sharing of data
  - Routine sequencing of viruses to look for changes



H5 testing at NYC PHL

Erik Kopping

NYC Health

Respiratory Surveillance at PHL

- NYC PHL routinely performs respiratory testing
  - Cepheid Xpert® Xpress Assay (Covid, flu A and B, RSV)
  - CDC Influenza SARS-CoV-2 (Flu SC2) Multiplex Assay

No influenza subtyping

Influenza subtyping

  - BioFire Respiratory Panel 2.1 (20+ analytes)
  - CDC Human Influenza Virus Real-Time RT-PCR Diagnostic Panel

NYC Health

Take Aways

- Avian influenza presents a potential pandemic risk only IF the virus develops the ability to transmit between people
- The current risk to the general public related to transmission of avian influenza H5N1 2.3.4.4b remains low
- The Health Department partners with multiple Agencies and Organizations that conduct avian influenza surveillance, testing and mitigation in birds and animals
- The Health Department monitors, and can test, people exposed to a bird or animal with avian influenza
- Years of experience and preparedness planning will allow us to rapidly respond to a future influenza pandemic (with any influenza virus) using existing tools: commercially available tests, effective vaccines, and antiviral treatments

Resources

- https://www.cdc.gov/flu/avianflu/index.htm
- https://www.cdc.gov/flu/avianflu/severe-potential.htm
- https://www.cdc.gov/flu/avianflu/avian-flu-summary.htm
- CDC A(H5N1) Bird Flu Response Update June 14, 2024 | Bird Flu | CDC
- https://www.aphis.usda.gov/livestock-poultry-disease/avian/avian-influenza/hpai-detections

NYC Health