



# MONDAYS WITH D R MARK & D R MICHAEL

Monday, June 10, 2024 | 1:00 – 1:45PM

TOPIC #25  
Navigating Bird Flu (H5N1):  
Essential Insights for Employers



# What is Avian Flu?

- An Influenza A virus that infects birds
- Avian Influenza (AI) are divided into subtypes based on two proteins on the surface of the virus:
  - Hemagglutinin (HA), of which there are 16 subtypes (H1-H16)
  - Neuraminidase (NA), of which there are 9 subtypes (N1-N9)
  - Many combinations of HA and NA proteins are possible (i.e., H5N1, H5N2, H7N2, H7N8, etc).
- AI viruses are also classified into two groups based on their ability to produce disease in chickens: highly pathogenic avian influenza (HPAI) or low pathogenic avian influenza (LPAI).
  - HPAI viruses cause high mortality in poultry and occasionally high death rates in certain species of wild birds.
  - LPAI viruses can cause a variety of outcomes in poultry ranging from no apparent clinical signs to moderate death rates. LPAI viruses usually cause little to no signs in wild birds.
- H5 and H7 LPAI viruses have the potential to mutate or evolve into HPAI viruses and are closely monitored by animal health officials.
- Avian influenza A(H7N9) virus and highly pathogenic avian influenza (HPAI) A(H5N1) and A(H5N6) viruses have been responsible for most human illness from avian influenza viruses worldwide



# Emergence and Evolution of H5N1 BIRD FLU

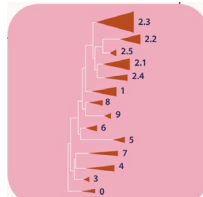
1996-1997



**1996-1997** H5N1 bird flu virus first detected

In 1996, highly pathogenic avian influenza H5N1 virus is first identified in domestic waterfowl in Southern China.

2003-2005

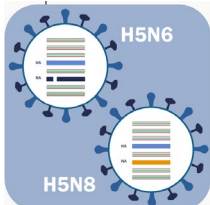


H5N1 spreads **2003-2005** and the virus mutates to having multiple genetic lineages

2003, H5N1 re-emerges in China and several other Asian countries

In 2005, wild birds spread H5N1 to poultry in Africa, the Middle East and Europe.

2014-2016

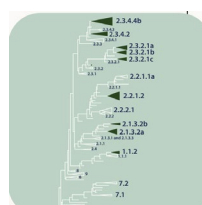


**2014-2016** H5N6 and H5N8 viruses emerge

Gene-swapping of H5 viruses from poultry and wild birds leads to emergence/detection of H5N6 and H5N8 virus subtypes.

Global spread – Asia, Africa, Europe, the Middle East and North America.

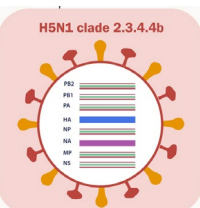
2018-2020



2.3.4.4b viruses spread widely **2018-2020**

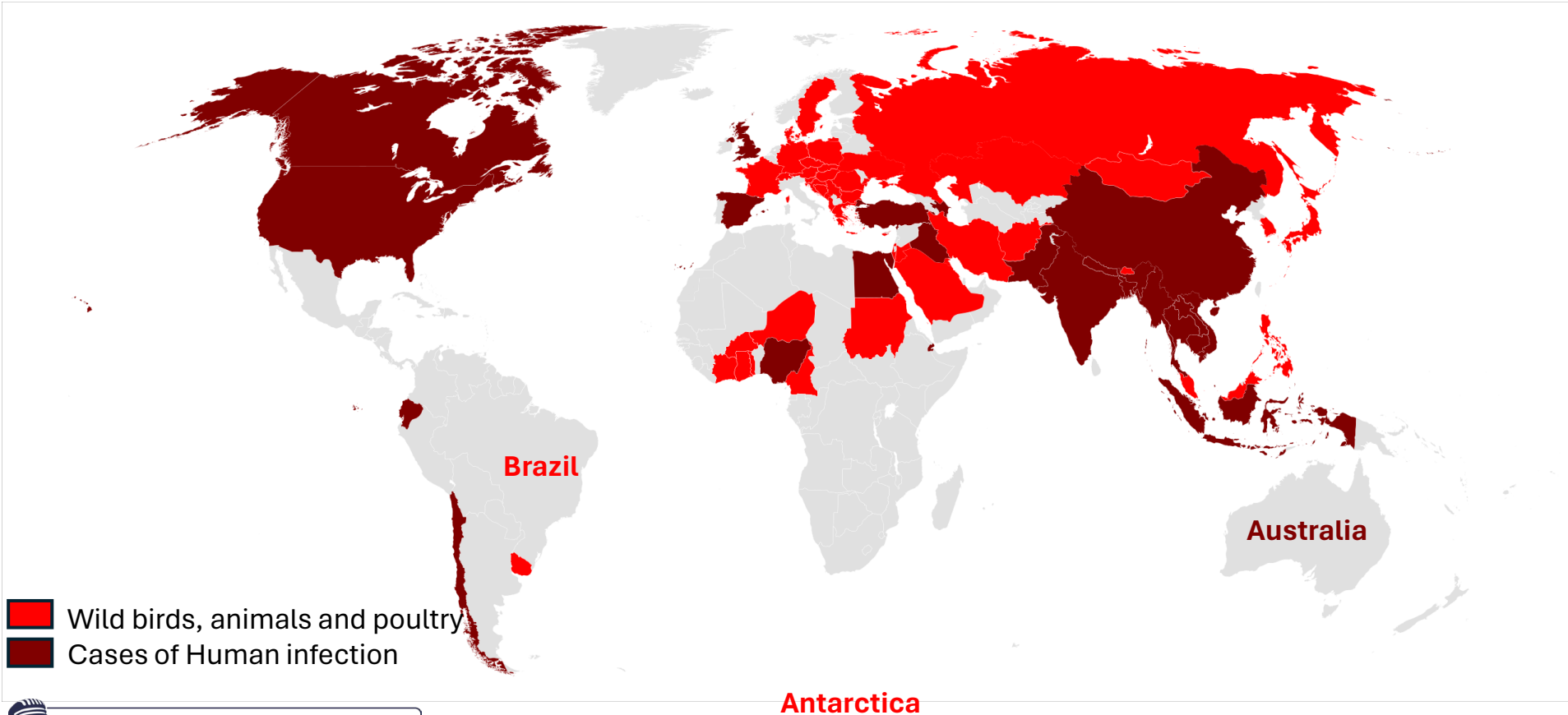
H5N6 and H5N8 viruses become predominant globally, replacing the original H5N1 viruses. As of 2022, there have been more than 70 H5N6 human infections and 7 H5N8 human infections reported. The H5 diversifies further into clade 2.3.4.4b which becomes predominant in Asia, Africa, Europe, and the Middle East.

2021-2024



**2021-2024** H5N1 found in Canada and US

A new H5N1 virus belonging to clade 2.3.4.4b with a wild bird adapted N1 NA gene emerges. Predominant in Asia, Africa, Europe, and the Middle East by the end of 2021. The virus is detected in wild birds in Canada and the United States in late 2021. In February 2022, the virus begins causing outbreaks in U.S. commercial and backyard poultry.



MONDAYS WITH  
DR MARK & DR MICHAEL

<https://commons.wikimedia.org/w/index.php?curid=582701>

**NORTHEAST**  
BUSINESS GROUP ON HEALTH

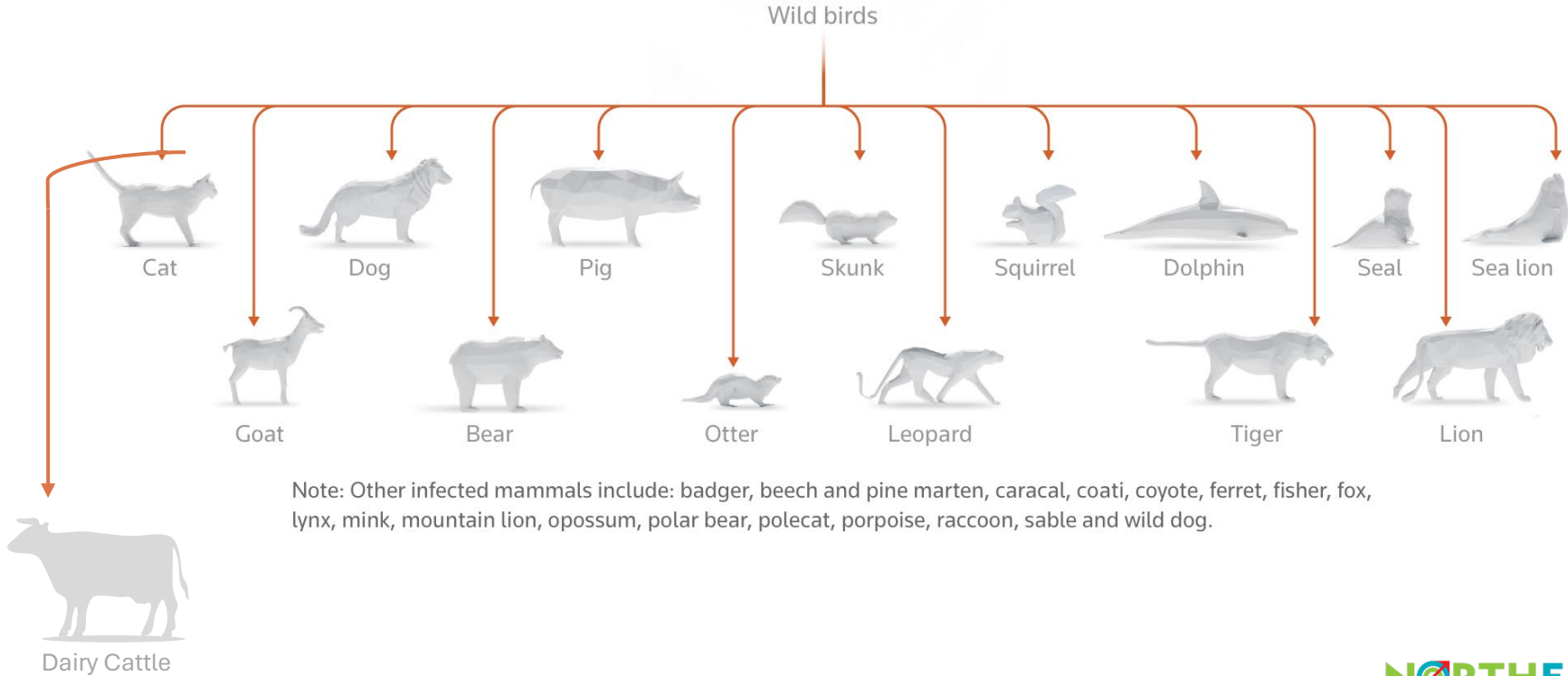
# Risk to humans

- The H5N1 virus remains as a virus that primarily infects birds and other animals
- Human cases are uncommon – since 2003 there have been close to 900 human infections
- There is currently no evidence of sustained human-to-human transmission
- Only 3 cases in the US
- The CDC assesses the **current public health risk as low**
- However, the CDC, WHO are monitoring the situation carefully because:
  - The case fatality rate of 50%
  - The virus has evolved to infect multiple species

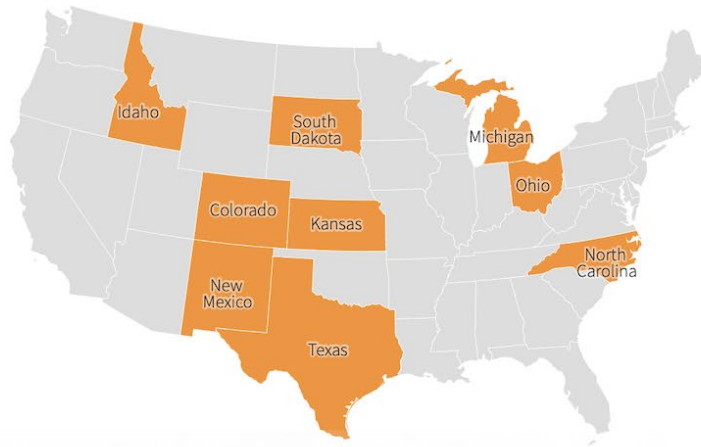


## Bird flu in mammals

Bird flu, or avian influenza, has increasingly spread to **other mammals**, raising concern it may mutate and transmit more easily to humans.



Note: Other infected mammals include: badger, beech and pine marten, caracal, coati, coyote, ferret, fisher, fox, lynx, mink, mountain lion, opossum, polar bear, polecat, porpoise, raccoon, sable and wild dog.



Experts say that the bird flu outbreak in dairy cattle occurred through a single transmission event from **a bird to a cow** in late 2023.



Infected wild duck

Wild birds, like ducks or geese, carry bird flu, which they spread around the world as they **migrate**.

Domesticated birds like chickens, turkeys and ducks can become infected with bird flu through **direct contact** with infected wild birds.



Infected poultry



Infected cattle

MONDAYS WITH  
DR MARK & DR MICHAEL

Source: U.S. Department of Agriculture

**NORTHEAST**  
BUSINESS GROUP ON HEALTH



# Monitoring

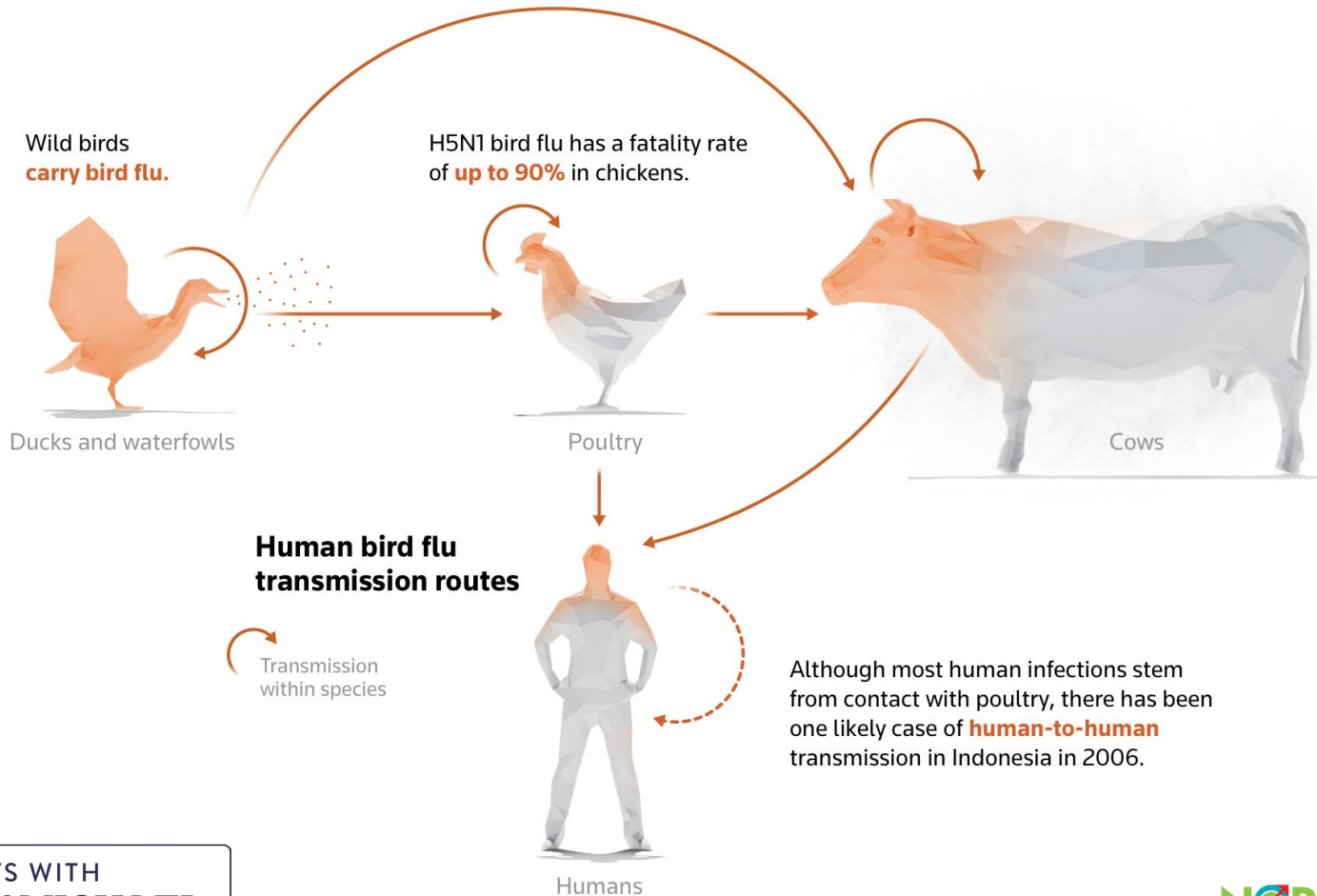
- Mandatory testing of interstate transportation of cattle
- Mandatory reporting by veterinarians
- However:
  - No routine screening of cattle and poultry workers
  - While no evidence of pig infections in the US they have occurred in the past (2010 in Indonesia) there is no routine testing of factory pig and swine farms
    - Pigs are a concern because they can easily support mixing of human and bird flu viruses – which may lead to a recombinant virus that could infect and be transmitted from human-to-human



MONDAYS WITH  
DR MARK & DR MICHAEL

**NORTHEAST**  
BUSINESS GROUP ON HEALTH

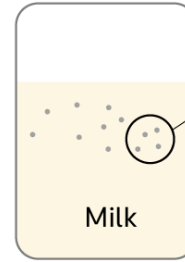






Infected cow

On April 23, the U.S. Food and Drug Administration said it had **detected particles** of H5N1 in the milk supply.



Milk

Tests suggest remnants of **dead virus**, killed during the pasteurisation process, remain in the milk.

### Pasteurisation

During the pasteurisation process, milk is **heated** to kill off bacteria and viruses.



Raw milk

Authorities warn not to drink **unpasteurised** milk.



Testing has **not detected** any live virus in pasteurised milk samples.



MONDAYS WITH  
DR MARK & DR MICHAEL



## Wild Birds

### Wild Birds Detected

**9,398**

as of 6/4/2024 | [Full Report >](#)

### Jurisdictions with Bird Flu in Wild Birds

**50**



## Poultry

### Poultry Affected

**96,809,026**

as of 6/5/2024 | [Full Report >](#)

### States with Poultry Outbreaks

**48**



## Dairy Cows

### Dairy Herds Affected

**83**

as of 6/6/2024 | [Full Report >](#)

### States with Outbreaks in Cows

**9**

as of 6/6/2024 | [Full Report >](#)

# Influenza A (H5N2)

On June 5, the WHO reported the first confirmed case of influenza A (H5N2) (avian influenza) in Mexico City.

- The first lab-confirmed human case of Influenza A(H5N2) (avian influenza) was hospitalized in Mexico City and died due to complications on April 24. Sequencing of the specimen confirmed A(H5N2) on May 22.
- This is the first human H5N2 case reported globally and first avian flu case of any strain in Mexico.
- The infected individual had multiple underlying health conditions, though no obvious history of exposure to poultry/other animals (unlike the 3 recent US H5N1 cases who had exposure to infected livestock)
- Of the 17 identified contacts of the case, none have tested positive.
- Influenza A(H5N2) has been detected in poultry in Mexico since March, but no obvious connection to this case.
- This strain is different than the influenza A (H5N1) strain identified in 3 dairy workers in the US (currently circulating in livestock in the US) since April 1.





# If you have been in contact with wild or sick birds or cattle (backyard, farm or hunting)

- Human illness from bird flu has ranged from no symptoms at all to severe illness, resulting in death.
- Monitor for 10 days for:
  - Fever (Temperature of 100°F [37.8°C] or greater)
  - Feeling feverish/Chills\*
  - Cough
  - Sore throat
  - Difficulty breathing/Shortness of breath
  - Eye tearing, redness or irritation
  - Headaches
  - Runny or stuffy nose
  - Muscle or body aches
  - Diarrhea

\*Fever may not always be present

- Become ill –
  - See your doctor or phone your state or local health department.;
  - isolate until proven you do or do not have avian influenza



# Staying Safe

- Avoid contact with obviously sick birds
- If hunting wear gloves when dressing birds, and wash hands with soap and water afterwards
- Proper hand hygiene after contact with any birds
- Cook poultry and eggs thoroughly
- It is not recommended to drink unpasteurized milk
- Get seasonal flu vaccine (no H5N1 vaccine yet)







# Worst Case Scenario

- If the virus gained the ability to easily infect humans and be transmitted from human-to-human, it could trigger a global pandemic
  - May impact children more than COVID – In the 2009 H1N1 pandemic, it is estimated that nearly 1,300 children under the age of 17 died in the United States
- Vaccines:
  - There are H5 vaccines, and the US government has a small stockpile
  - The vaccine industry has many years of making influenza vaccines so could produce specific H5N1 (or circulating AI virus) - however egg-based production takes months
  - Likely global shortages initially leading to vaccine inequity
  - mRNA vaccines may be a future solution
- Antivirals – Tamiflu is expected to be effective at reducing symptoms

# Employer Actions for a Possible H5N1 Pandemic

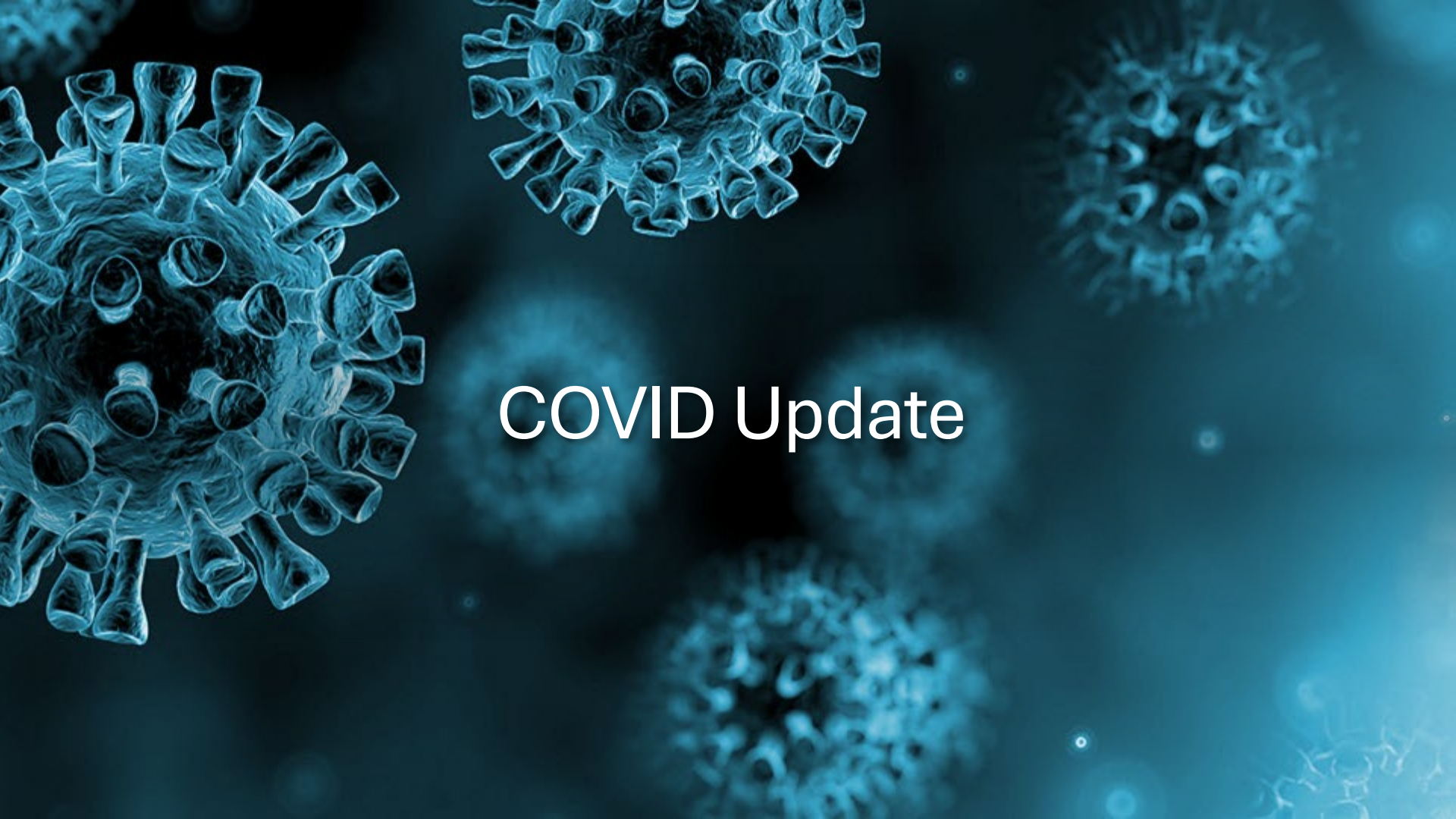
---

1. Set Up a Response Team - Establish a pandemic coordinator and a response team responsible for planning and managing the pandemic response.
2. Plan for Infection Prevention and Control Measures:
  - Consider stock piling N95 masks
  - Consider stockpiling antivirals e.g. Tamiflu
  - Optimize HVAC systems
  - Review cleaning regimes
  - Plan triggers for site closures, remote working etc..
  - Plan to diversify supply chains to minimize global supply chain risks and employee responsibilities to maintain operations even if some employees are unable to work.
  - Review PTO
  - Develop communication plans for employees and stakeholders
  - Monitor CDC, WHO and other reputable sources of information
3. Encourage seasonal influenza, COVID and other respiratory illness vaccines
4. Conduct Regular Drills and Training
  - Run through pandemic response plans with employees, including tests and drills, to ensure everyone understands their roles and responsibilities.

# If have At Risk Employees/Activities

---

1. Ensure the use of personal protective equipment (PPE) for employees who may be exposed to H5N1, such as those working with infected animals or materials.
2. Promote good hygiene practices, including regular hand washing and the use of hand sanitizers.
3. Monitor and Test Exposed Individuals
4. Monitor employees who have been exposed to H5N1-infected birds or animals for signs of acute respiratory illness for 10 days after their last exposure.
5. Test symptomatic individuals using reverse-transcription polymerase chain reaction (RT-PCR) assays to confirm H5N1 infection.
6. Collaborate with Public Health Authorities
7. Work closely with local and state public health departments to stay informed about the latest recommendations and guidelines for H5N1.
8. Biosecurity in Agricultural Settings
  - Implement strict biosecurity measures on farms to prevent the spread of H5N1 among poultry and other livestock.



# COVID Update

In the 2023-24 season, the overall rate of COVID-19-associated hospitalizations was 134.2 per 100,000 people

## Dashboard

Rates

Characteristics

## View

Monthly Rates

Weekly Rates

Cumulative Rates

All Seasons

## Filters

### Season

Multiple selections

☒ Select all

☐ 2019-20

☐ 2020-21

☐ 2021-22

☒ 2022-23

☒ 2023-24

### Race and Ethnicity

All

### Sex

All

Reset Filters



Download Data

Season

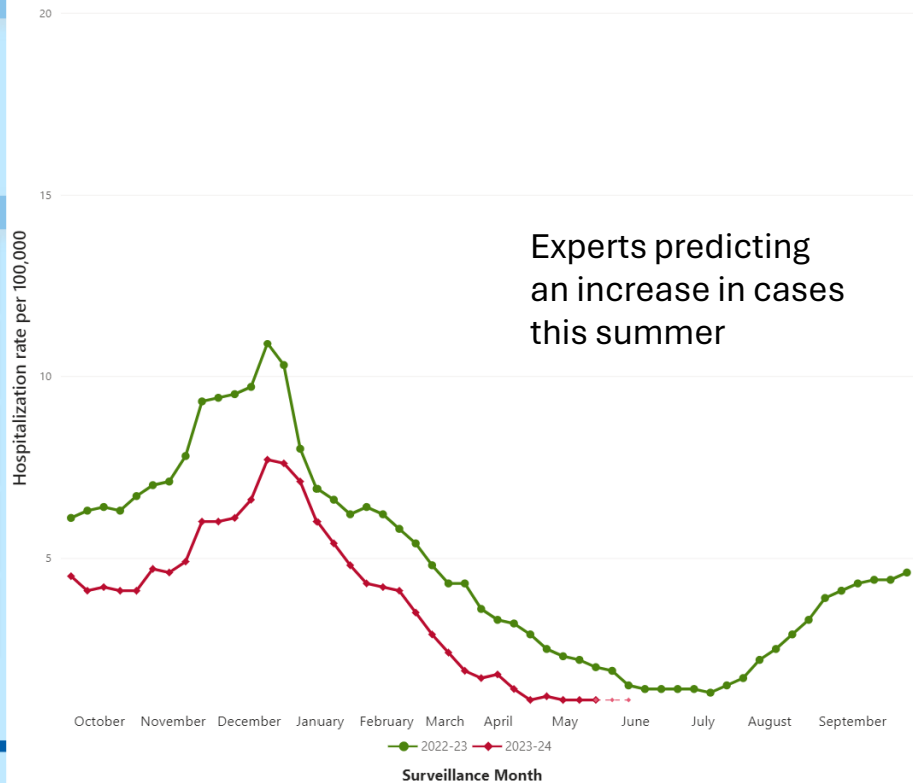
Age Group

Race and Ethnicity

Sex

Site

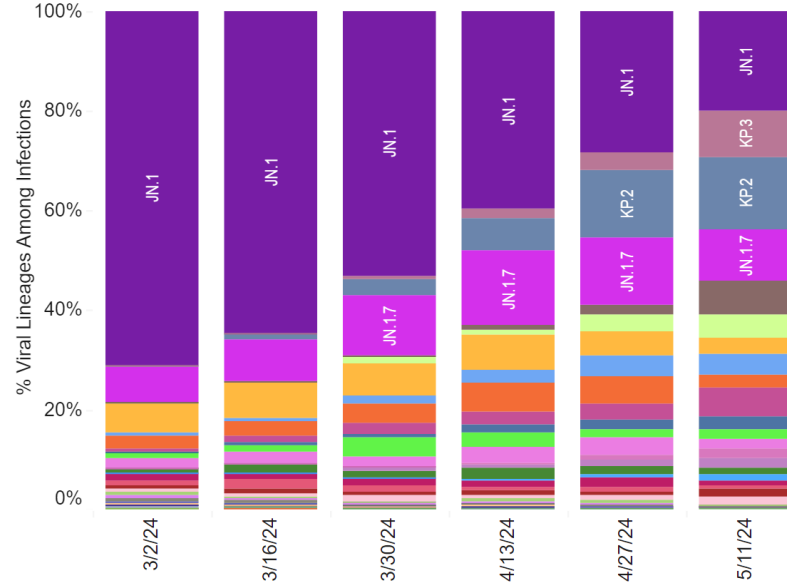
Weekly Rates of COVID-19 Associated Hospitalizations by Season



Data last updated: 6/6/2024 | Accessibility: Select (Enter) the graph area and press Alt + Shift + F11 to view the data as a table. Press ? to view more keyboard shortcuts.



**Weighted Estimates:** Variant proportions based on reported genomic sequencing results



Collection date, two-week period ending

**Nowcast\*\*:** Model-based projected estimates of variant proportions



Selected  
2-Week

**USA**

WHO label	Lineage #	%Total	95%PI	
Omicron	KP.3	25.0%	15.9-36.7%	
	KP.2	22.5%	17.4-28.5%	
	LB.1	14.9%	7.6-26.6%	
	KP.1.1	7.5%	4.6-11.8%	
	JN.1.11.1	4.4%	2.6-7.3%	
	JN.1.7	3.7%	2.6-5.1%	
	XDV.1	3.4%	1.5-7.2%	
	JN.1.16.1	3.3%	2.0-5.5%	
	JN.1	3.1%	2.2-4.3%	
	JN.1.16	2.4%	1.1-4.8%	
	KS.1	2.2%	1.3-3.6%	
	KW.1.1	2.0%	0.6-5.5%	
	JN.1.13.1	1.5%	1.0-2.1%	
	JN.1.8.1	0.9%	0.6-1.4%	
	JN.1.18	0.8%	0.5-1.2%	
	KQ.1	0.8%	0.4-1.5%	
	JN.1.32	0.4%	0.3-0.6%	
	JN.1.4.3	0.3%	0.1-0.9%	
	XDP	0.3%	0.1-0.5%	
	KV.2	0.2%	0.1-0.3%	
	BA.2	0.0%	0.0-0.3%	
	BA.2.86	0.0%	0.0-0.0%	
	HV.1	0.0%	0.0-0.0%	

\*\* These data include Nowcast estimates, which are modeled projections that may differ from weighted estimates generated at later dates

# Enumerated lineages are US VOC and lineages circulating above 1% nationally in at least one 2-week period. "Other" represents the aggregation of lineages which are circulating <1% nationally during all 2-week periods displayed. While all lineages are tracked,



# 2024-2025 formula for COVID-19 vaccines



Monovalent JN.1

# Vaccine Recommendations

- Current ACIP Guidance 2023
  - Everybody 6 months or older have 1 dose (Moderna and Pfizer >12 years for Novavax)
  - Supplies of new JN.1 vaccine available in the fall
- ACIP recommended that all persons aged  $\geq 65$  years receive 1 additional dose of any updated (2023–2024 Formula) COVID-19 vaccine (i.e., Moderna, Novavax, or Pfizer-BioNTech)



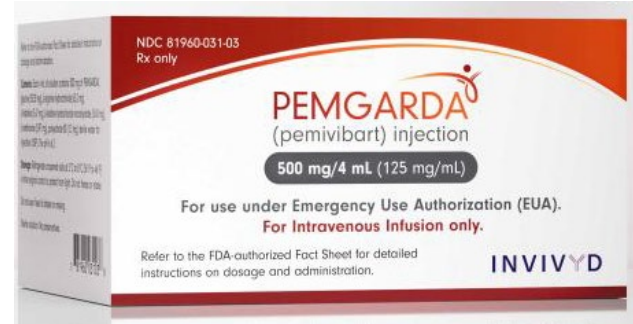
# Treatment, Prevention & Testing

## TREATMENT/PREVENTION

- **Paxlovid** - must be started within the first 5 days of COVID-19 symptoms
- **Pemgarda** –
  - Monoclonal antibody infusion for immunocompromised people (>12)
  - Prevention before they get COVID
  - Repeat every 3 months
  - Cost \$6K but only for a select group of patients

## TESTING

- PCR and Rapid antigen tests work with the new variants
- Note – FDA advise not using Cue tests



# Questions

## Upcoming NEBGH events

- **June 20** – Reshaping Care and Culture: Health and Benefits Innovation
- **June 24** – Mondays w/ Dr. Mark & Dr. Michael: Special Guest Dexter Shurney on Blue Zones
- **June 28** – Kicks and Cocktails: A Professionals Mixer and Private Movie Screening
- **July 8** – Mondays w/ Dr. Mark & Dr. Michael: Managing Migraine in the Workplace
- **September 12** – Pharmacy Benefits 2024



MONDAYS WITH  
**DR MARK & DR MICHAEL**