

## A Case of Highly Pathogenic Avian Influenza (AH5N1)

### Session Resources:

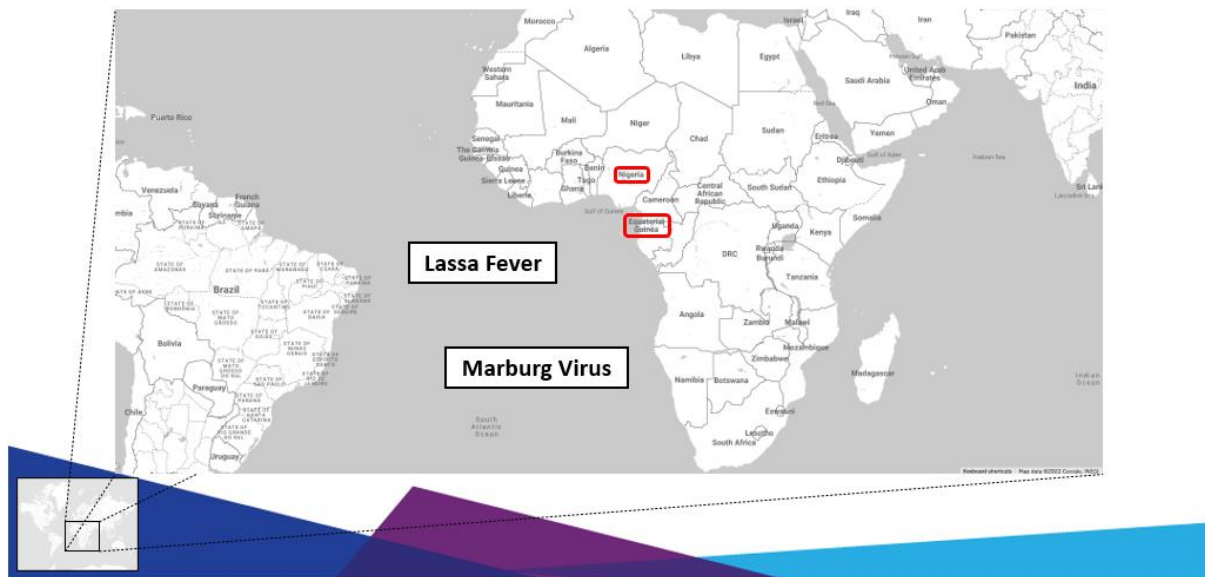
- Post session resources (podcast of webinar, presentation slides, responses to unanswered questions) can be found on our website:
  - <https://med.emory.edu/departments/medicine/divisions/infectious-diseases/serious-communicable-diseases-program/covid-19-resources/access-past-echo-recordings.html>
- Region 4 Situation Report:
  - <https://med.emory.edu/departments/medicine/divisions/infectious-diseases/serious-communicable-diseases-program/covid-19-resources/region-4-situation-reports1.html>
- Register for upcoming sessions on our website:
  - <https://med.emory.edu/departments/medicine/divisions/infectious-diseases/serious-communicable-diseases-program/covid-19-resources/echo-upcoming-session.html>
- HHS Region IV Emory University SCDP:
  - <https://med.emory.edu/departments/medicine/divisions/infectious-diseases/serious-communicable-diseases-program/covid-19-resources/index.html>
- Region IV Concept of Operations (CONOPS) - Regional Partners and Contacts:
  - <https://netec.org/about-netec/partners-regional-contacts/#regional-contacts>
- Emory Serious Communicable Diseases Unit:
  - <https://med.emory.edu/departments/medicine/divisions/infectious-diseases/serious-communicable-diseases-program/ebola-resources/index.html>
- NETEC:
  - <https://netec.org/>
- CDC – H5N1 Technical Report:
  - <https://www.cdc.gov/flu/avianflu/spotlights/2022-2023/h5n1-technical-report.htm>
- Case definitions:
  - <https://www.cdc.gov/flu/avianflu/case-definitions.html>
- Monitoring & post-exposure antiviral prophylaxis:
  - <https://www.cdc.gov/flu/avianflu/guidance-exposed-persons.htm>
- Follow-up of close contacts:
  - <https://www.cdc.gov/flu/avianflu/novel-av-chemoprophylaxis-guidance.htm>
- Summary for clinicians:
  - <https://www.cdc.gov/flu/avianflu/clinicians-evaluating-patients.htm>
- Specimen collection & testing:
  - <https://www.cdc.gov/flu/avianflu/severe-potential.htm>
- Infection prevention and control:
  - <https://www.cdc.gov/flu/avianflu/novel-flu-infection-control.htm>
- Antiviral guidance:
  - <https://www.cdc.gov/flu/avianflu/novel-av-treatment-guidance.htm>
- Current situation:
  - <https://www.cdc.gov/flu/avianflu/avian-flu-summary.htm>
- de Jong et al. Fatal outcome of H5N1 associated with high viral load and hypercytokinemia. *Nat Med* 2006;12:1203-7
- Gambotto et al. Human infection with highly pathogenic H5N1 influenza virus. *Lancet* 2007;371:1464-75

- WHO Writing Committee Update on H5N1 virus infection in humans. *N Engl J Med* 2008;358:261-273
- Uyeki. Human infection with H5N1 virus: review of clinical issues. *Clin Infect Dis* 2009;49:279-90
- White et al. What is the optimal therapy for patients with H5N1 influenza? *PLoS Med* 2009;6:e1000091.

## Situation Report

The Emory University Serious Communicable Diseases Program in conjunction with the SRDRS puts together situation reports on special pathogens of concern for our region, HHS Region IV. These Sit Reps are typically published on our website, social media channels, Emory Department of Medicine YouTube Channel and listservs. Here is the current HHS Region IV Special Pathogens Sit rep.

### ***Situation Report 16 March 2023***



- First, the most recent situation report from the Nigeria Center for Disease Control reported 676 confirmed cases of Lassa Fever, with 4 probable and 109 deaths, equating to a case fatality rate of approximately 16%. This represents cases from 2023 alone and is higher than the same period from 2022. The in-country Emergency Operations Centre continues to coordinate all activities, and the national transmission risk remains high.


**Situation Report 16 March 2023**




- Next, as of last week Bangladesh identified 3 additional cases of Nipah virus and 2 additional deaths, an increase from 11 cases and 8 deaths 2 weeks prior. Since the beginning of this year the country has seen 14 confirmed cases, all connected to the consumption of raw date palm sap. Again, this is the most in the country since 2015. And while the risk remains high for additional cases in-country, the global risk continues to remain low as international travel is difficult from the affected regions.



<https://scdu.emory.edu>

 @EmorySCDP

 <https://www.youtube.com/@EmoryDOM>

- There has been no reports of other suspected or confirmed patients with special pathogens of concern in Region IV at this time.
- And for more resources, visit us on the web at [scdu.emory.edu](http://scdu.emory.edu)

### **Additional Discussion:**

1. Do you expect to see more outbreaks of HPAI in the coming years in mammals, similar to mink?
  - a. *Response: Yes, because of the widespread geographic prevalence of HPAI A(H5N1) viruses circulating in wild birds and poultry outbreaks, it is likely that there will continue to be sporadic spillover to infect different mammal species due to consumption of infected birds or exposure to H5N1 virus-contaminated environments.*
  
2. The assumption is that seasonal influenza vaccine will have *\*some\** protection but likely low - is there any data on that? or a hunch?
  - a. *Seasonal influenza vaccination is not expected to have any protection against HPAI A(H5N1) virus infection, based upon serologic data.*
  
3. Any recs for prophylaxis if someone has a high-risk exposure?
  - a. *Response: Please see the following guidance:*
    - i. CDC: <https://www.cdc.gov/flu/avianflu/guidance-exposed-persons.htm>
    - ii. CDC: <https://www.cdc.gov/flu/avianflu/novel-av-chemoprophylaxis-guidance.htm>
    - iii. CDC: <https://www.cdc.gov/flu/avianflu/case-definitions.html>
    - iv. CDC: <https://www.cdc.gov/flu/avianflu/clinicians-evaluating-patients.htm>
    - v. CDC: <https://www.cdc.gov/flu/avianflu/severe-potential.htm>
    - vi. CDC: <https://www.cdc.gov/flu/avianflu/groups.htm>
    - vii. USDA: [https://www.aphis.usda.gov/animal\\_health/downloads/animal\\_diseases/ai/ai-monitoring-plan.pdf](https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/ai/ai-monitoring-plan.pdf)
  
4. What is the value for low or moderate dose or corticosteroids as part of the H5N1 treatment regimen?
  - a. *Response: Corticosteroids are not recommended for treatment of H5N1 patients. However, if clinicians are considering administering corticosteroids to patients with severe pneumonia, respiratory failure, or ARDS, clinicians should be aware that observational studies of hospitalized patients with severe pneumonia due to avian influenza A virus infection (e.g., H5N1 or H7N9) have reported that high-dose corticosteroid treatment was associated with prolonged viral shedding and death.*
  - b. *For example, see the following:*
    - i. <https://pubmed.ncbi.nlm.nih.gov/19435433/>
    - ii. <https://pubmed.ncbi.nlm.nih.gov/18199865/>
    - iii. <https://pubmed.ncbi.nlm.nih.gov/28675634/>
    - iv. <https://pubmed.ncbi.nlm.nih.gov/26934144/>

5. I think I read that we saw mammal-to-mammal sustained transmission among minks in Europe. What would this mean for the possibility of human-to-human sustained transmission?

a. *Response: There may have been mink-to-mink clade 2.3.4.4b HPAI A(H5N1) virus transmission in the Spain outbreak among farmed mink during October-November 2022, but it was not sustained transmission – that outbreak was contained by November 2022. There is no evidence to date of sustained HPAI A(H5N1) virus transmission among mammals worldwide. Rather there is sustained virus transmission in wild birds, with outbreaks in poultry and some sporadic spillover to mammals. For example, in the recent outbreak in seals off the coast of Peru, it is too early to know whether there was only H5N1 virus-contaminated environment-to-seal transmission (e.g., fecal shedding by infected birds into ocean water and coastal environments) or also some seal-to-seal H5N1 virus transmission, but that does not mean there is sustained virus transmission in seals. For the farmed mink outbreak in Spain, and in an outbreak in seals in the U.S., some H5N1 virus mutations were identified, but no evidence of seal-to-seal H5N1 virus transmission. To date, there have not been any mutations noted in H5N1 viruses recovered from infected wild birds, poultry, mammals, or people that increase H5N1 virus ability to bind to receptors in the human upper respiratory tract. Therefore, there is no evidence to date that H5N1 viruses currently circulating in birds have the ability to easily infect or transmit among people. This is observed by the very small number of human H5N1 cases reported since January 2022 worldwide in the context of widespread circulation of H5N1 viruses in wild birds and poultry outbreaks in most regions of the world. In contrast, during 2004-2007, there were more than 60 countries that reported H5N1 outbreaks in wild birds and poultry, with many more human H5N1 cases identified. Please see the following guidance:*

- i. [https://cdn.who.int/media/docs/default-source/influenza/human-animal-interface-risk-assessments/cumulative-number-of--confirmed-human-cases-for-avian-influenza-a\(h5n1\)-reported-to-who--2003-2023.pdf?sfvrsn=c6600b55\\_1&download=true](https://cdn.who.int/media/docs/default-source/influenza/human-animal-interface-risk-assessments/cumulative-number-of--confirmed-human-cases-for-avian-influenza-a(h5n1)-reported-to-who--2003-2023.pdf?sfvrsn=c6600b55_1&download=true)
- ii. <https://www.who.int/publications/m/item/influenza-at-the-human-animal-interface-summary-and-assessment-3-march-2023>.
- iii. <https://pubmed.ncbi.nlm.nih.gov/36695488/>
- iv. <https://pubmed.ncbi.nlm.nih.gov/36795504/>
- v. <https://pubmed.ncbi.nlm.nih.gov/36795502/>
- vi. [https://wwwnc.cdc.gov/eid/article/29/4/22-1538\\_article](https://wwwnc.cdc.gov/eid/article/29/4/22-1538_article)

6. Can you comment on the use of genetic sequencing?

a. *Response: Sequencing of H5N1 viruses identified in infected wild birds, poultry, mammals, or humans is very important to track the evolution of H5N1 viruses. This includes monitoring antigenic evolution, particularly with respect to comparison with existing H5 candidate vaccine viruses developed for pandemic influenza preparedness, assessing susceptibility to approved antiviral medications, and assessing whether there are any genetic changes that might suggest adaptation to spread more easily in mammals or to bind more efficiently to receptors in the human upper respiratory tract. It is important to sequence the H5N1 virus hemagglutinin gene to assess any genetic changes that might affect receptor binding tropism in humans, and whole genome*

*sequencing of all 8 genes is also very important to assess genetic markers that may affect disease severity or transmission among mammals and people.*

7. With the concern over avian influenza, is it safe to eat poultry & eggs? Also, what is the transmissibility?
  - a. *Response: Yes, it is safe to eat poultry and eggs. You cannot get avian influenza from eggs and poultry products that have been prepared and cooked properly. Avian influenza is most often spread by direct contact between infected birds and healthy birds. It may also be spread indirectly through contact with contaminated equipment and biological excretions (droppings).*
  - b. *Contact with contaminated droppings is the most common means of bird-to-bird transmission, although airborne secretions are another important means of transmission, especially within poultry houses. Droppings from wild ducks can introduce avian influenza into domestic flocks raised on range or in open flight pens. The spread of avian influenza between poultry facilities almost always results from the movement of infected birds or contaminated people and equipment (including clothing, boots, and vehicles). Highly pathogenic avian influenza can be spread from birds to people as a result of extensive direct contact with infected birds, such as during home slaughter or defeathering of infected poultry.*
  
8. How does the state effectively collaborate with the poultry industry (backyard/commercial) & poultry labs on AI positive tests?
  - a. *Response: Please see the following guidance:*
    - i. <https://agr.georgia.gov/our-ai-partners>
  
9. Which veterinarian groups do DPH work with to ensure the safety of poultry farming?
  - a. *Response: Please see the following guidance:*
    - i. <https://agr.georgia.gov/our-ai-partners>
    - ii. <https://agr.georgia.gov/avian-influenza>
  
10. How is waste management (i.e., bird feces, etc.) managed by public health?
  - a. *This is not a Public Health activity but rather falls under biosecurity—Dept of Ag, USDA, farms, industry.*
    - i. *Response: Please see the following guidance:*
      1. <https://agr.georgia.gov/avian-influenza>
  
11. What actions are being taken by public health to mitigate the spread?
  - a. *Not directly a public health activity — see links above and see the following guidance:*
    - i. <https://dph.georgia.gov/avian-influenza>
    - ii. <https://agr.georgia.gov/avian-influenza>
  
12. What effects can we expect in public health from avian influenza?
  - a. *Continued capacity of surveillance/detecting infections, testing for novel flu at PHLs, monitoring exposed individuals, and working with all partners above.*
  
13. What type of messaging should Public Health be giving regarding HPAI, especially when more and more species are dying from it?

- a. *Response: Please see the following guidance:*
  - i. <https://dph.georgia.gov/avian-influenza>