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Guidance for Veterinarians Related to HPAI in Dairy Cattle:

Last Updated: April 04, 2024

Highly pathogenic avian influenza (HPAI) has been present in the United States since winter of 2022. In March 2024, the virus was isolated in clinically abnormal cattle. The extent and significance of this disease in cattle is still being evaluated. As the epidemiology and clinical picture develop, this guidance will be updated. In the meantime, Vermont producers are being encouraged to contact their veterinarian first if they are seeing abnormalities in their herds that could be consistent with HPAI. The purpose of this guidance is to inform accredited veterinarians of the processes and protocols they should follow when responding to a report or following up on an observation of affected cattle.

The HPAI virus isolated from affected cattle in other states is the same strain that has been circulating in wild birds and impacting poultry since 2022. Thus far, lactating dairy cattle have been the most affected of the livestock because the HPAI virus appears to concentrate in mammary tissues and milk. Signs have been generalized, and the USDA is currently using the following case profile to describe cattle affected by HPAI:

- *Sudden drop in feed intake with concurrent decreased rumination and rumen motility.*
- *Subsequent marked drop in herd level milk production. More severely affected cows may have thickened milk that almost appears like colostrum or may have essentially no milk.*
- *Changes in manure - most reporting indicates tacky to dry manure in affected cattle.*

The prevalence of affected cattle in US herds impacted by HPAI has been variable at 5-20%. Vermont state veterinarians are collaborating with state and federal animal and public health partners to monitor this situation and take necessary actions to help protect Vermont's dairy industry. We expect that you will receive reports from your clients who may be concerned about their bovine dairy herds and /or may be observing consistent clinical signs. If you observe consistent clinical signs in a client's dairy herd or receive a call from a client reporting signs consistent with these cases, please do the following:



- **Look for horses before zebras.** There have been no reports of HPAI in Vermont or New England. The route and mechanism of spread into and between herds is not yet understood, and Vermont has little to no movement of cattle from the affected areas into our state. The signs listed above can often be attributed to known and common conditions. Please continue to exercise due diligence in ruling out more common etiologies for the clinical signs displayed by animals meeting the case description above.
- If you are concerned about the possibility of an HPAI etiology for the clinical signs you are observing, please complete the epi questionnaire (included at the end of this document) with your client. This is the minimum data set that state veterinarians (SAHOs) will need to support you and your client through a HPAI diagnostic workup.
- **Call the State Animal Health office!** There are specific steps that must be followed when investigating a HPAI concern in dairy cattle to ensure diagnostic testing at no charge and case continuity. As you are developing a diagnostic plan and/or if typical disease processes have been ruled out, or other exposure concerns have been raised (co-housed with clinically abnormal birds, exposure to dead birds, recent movement from affected states), please complete the epi questionnaire and report the case to the State animal health office at 802-828-2421. If after-hours or on a weekend, please follow the recorded instructions on the State's outgoing voice mail message for reaching the SAHOs.
 - A quarantine may be placed by the SAHO on the affected farm preventing animal movement while the situation is being further evaluated and diagnostic test results are pending.
- **FAD/ED Number.** Once you have received SAHO approval to submit samples, you will receive a Foreign Animal Disease/Emerging Disease (known as a FAD/ED) number. The FAD/ED number will be required to receive the testing free of charge and to ensure that the case is properly tracked and reported through the necessary federal systems.
 - If submitted with an FAD/ED number and the with SAHO approval, the USDA will cover the cost of sampling a maximum of 20 livestock animals per affected premises. Each animal can have up to 2 samples (milk and/or nasal swab) covered. It may be beneficial to also collect blood samples from affected cattle for HPAI serologic testing. That decision will be made on a case by case basis in conjunction with the SAHO and USDA.
- **Collect Samples.** Sample collection will depend on the signalment of the animals affected.
 - **If the animal is lactating, you must collect milk/mammary tissue.** Submit 5 – 10 ml per animal, pooling milk from all 4 quarters.
 - For non-lactating animals and secondary samples from lactating animals, collect a nasal swab. Use a single swab to sample both nostrils, making sure to firmly contact the mucosa on both sides. Swirl the swab in the media, press the swab against the side of the tube to get the liquid out, and remove the swab. Do not



submit the swab itself, either dry or retained in media. Sample media can be PrimeStore MTM, Brain Heart Infusion (BHI) Broth, or Saline (least preferable).

- Please note: only PrimeStore MTM should be submitted without ice. BHI and saline will need to be sent in a manner that maintains cold storage.
- **Submit to a NAHLN laboratory.** Samples should be shipped overnight to a NAHLN lab approved for AI testing. The Connecticut Veterinary Medical Diagnostic Lab at the University of Connecticut (UConn) and Animal Health Diagnostic Center at Cornell University (Cornell) both offer this testing. Links to submissions forms are included at the end of this document.
- **Wear appropriate PPE.** HPAI is zoonotic, though the CDC considers it a low risk to humans. When handling any animal you suspect of being infected with HPAI, it is important to wear appropriate PPE. This includes coveralls and gloves and a minimum but may extend to eye protection and respiratory protection depending on the situation. Please refer to [the USDA guidelines for protecting yourself and farm workers](#).
- **Practice good biosecurity.** HPAI is known to spread through fomites. Please ensure that you are protecting the rest of your clients and farms by properly cleaning and disinfecting boots and equipment between calls. Consider scheduling appointments involving suspect animals/herds for the end of the day or when you can shower or change before your next appointment. As an added precaution, carwashes can minimize tracking material to the next location.
- **If domestic birds are also present on the farm:** Samples may also be submitted from domestic birds on the same premises. These samples can be pooled oropharyngeal swabs (5 swabs per tube) in BHI Broth. **If poultry are exhibiting signs consistent with HPAI,** or if dead wild birds are present on the premises, please contact SAHOs immediately, regardless of any cattle-specific diagnostic plan decisions made.

References and Forms:

- UConn Submission: Use the “[Serology, Microbiology, and Molecular Diagnostics](#)” submission form.
 - In the Molecular subsection, **select Other and add “HPAI.”** There is a selection for Influenza A (non-avian), but the lab has requested this process for clarity.
 - Include the FAD/ED number in History.
- Cornell Submission: [Complete Instructions](#)
 - Summary:
 - Use [General Submission](#) form
 - Write “HPAI” in the testing column and include the FAD/ED in History.
 - Include other differential diagnoses or tests requested if HPAI is negative.
 - **Call 607-253-3900 before submission** to reach the Veterinary Support Services team. This lets them know that a sample is coming, and they will walk through the submission process with you.



- Additional information from Cornell regarding testing can be found at:
<https://www.vet.cornell.edu/animal-health-diagnostic-center/news/testing-cattle-highly-pathogenic-avian-influenza-hpai>
- USDA HPAI in Livestock: [Highly Pathogenic Avian Influenza \(HPAI\) Detections in Livestock | Animal and Plant Health Inspection Service \(usda.gov\)](#)



Livestock Short Epidemiology Worksheet: Initial Visit

Visit Date: _____

rDVM: _____ Telephone: _____

Premises/Farm Name: _____

Street Address (animal location!): _____

City/Town: _____ **State:** _____ **Zip Code:** _____

Premises Owner: _____ Same as herd owner? Yes No

Telephone: _____ Email: _____

Herd owner: (if different) _____

Telephone: _____ Email: _____

Brief History:

Total Number of milking cows: _____ Total Number of cattle on Premises: _____

Milk: Coop _____ Pick-Up Schedule _____

Pasteurized Raw milk (fluid) Cheese Raw milk cheese Meat Other _____

Own use (personal consumption) On-farm sale Retail sale

How is waste milk disposed? _____

Domestic Birds On Premises: Turkeys Chickens Ducks Geese Guinea Fowl

Upland Game Birds (pheasant, grouse, etc.) Pigeons/Doves Ratites (emus, ostrich, etc.)

Are cows and birds cohoused or comingled? Yes No Shared water source with birds? Yes No

Herd exposure to wild birds? Yes No Access to water with wild birds? Yes No

Are there any sick or dead birds (domestic or wild) on the premises? Yes No

Other Animal Species Present? Yes No If yes, check all that apply:

Beef Cattle Pigs Goats Sheep Llamas Alpacas Dog Cat Other: _____

Morbidity/Mortality: Cohort: _____ Healthy: _____ Sick: _____ Dead: _____
 Cohort: _____ Healthy: _____ Sick: _____ Dead: _____
 Cohort: _____ Healthy: _____ Sick: _____ Dead: _____

If any cows sick or dead, note date clinical signs started: _____

- Clinical Signs** (check all that apply): None, cows appear clinically healthy
- Decreased Feed or Water Intake Reduced rumen motility Depression Fever
- Diarrhea Dry / tacky stool Coughing Incoordination/Nervous System Signs
- Decrease milk production Thickened/off colored milk Other: _____

Movement types: (Collect/copy supporting documentation)

Movements <u>ONTO</u> the Premises			
Movement Type	Last 7 days	Last 14 days	Date Last Occurred
Animals (new or returning)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Return from show/exhibition	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Veterinarian, Inspectors	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Farm Visitors or Customers	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supply Deliveries (feed, shavings)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Farm Equipment (loan, purchase)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Movements <u>OFF</u> the Premises			
Movement Type	Last 7 days	Last 14 days	Date Last Occurred
Animals (sale, slaughter, etc.)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Attend show/exhibition	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Feed store visit	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Herdsmen to other farms	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Supply Deliveries (feed, shavings)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Farm Equipment (loan, purchase)	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	
Dead stock/Manure Disposal	<input type="checkbox"/> Yes <input type="checkbox"/> No	<input type="checkbox"/> Yes <input type="checkbox"/> No	

Additional Comments or Recommendations given to farm: _____

Samples collected? Milk Nasal Swab Blood/Serum

FOR USE BY STATE VETERINARIAN:

SAHO NAME: _____ **FAD/ED Number:** _____

National Premises Identification Number (PIN)? _____ **GPS Coord (Lat/Long):** _____

Quarantine issued (Y/N)? _____ **Date:** _____