WOAH Reference Laboratory Reports Activities 2022

Activities in 2022

This report has been submitted : 25 avril 2023 14:58

Laboratory Information

Name of disease (or topic) for which you are a designated WOAH Reference Laboratory:	Avian influenza
Address of laboratory:	National Veterinary Services Laboratories USDA, APHIS, Veterinary Services 1920 Dayton Ave Ames, IA 50010 UNITED STATES OF AMERICA
Tel.:	15153377301
E-mail address:	mia.kim.torchetti@usda.gov
Website:	www.aphis.usda.gov/nvsl
Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Suelee Robbe-Austerman, Director, National Veterinary Services Laboratories
Name (including Title and Position) of WOAH Reference Expert:	Mia Kim Torchetti, Director, Diagnostic Virology Laboratory, NVSL
Which of the following defines your laboratory? Check all that apply:	Governmental

TOR1: DIAGNOSTIC METHODS

1. Did your laboratory perform diagnostic tests for the specified disease/topic for purposes such as disease diagnosis, screening of animals for export, surveillance, etc.? (Not for quality control, proficiency testing or staff training)

Yes

Diagnostic Test	Indicated in WOAH Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
Agar gel immunodiffusion (AGID)	YES	236	47

Hemagglutination-inhibition (HI) antibody subtype identification (H1-16)	YES	3359	174
Direct diagnostic tests		Nationally	Internationally
Real-time RT-PCR (IAV, subtyping)	YES	18255	117
Virus Isolation (positive/total samples)	YES	306/4238	6/1418
Molecular pathotype (Sanger)	YES	1120	0
In vivo pathotype (IVPI)	YES	13	0
Whole genome sequencing	YES	9588	6

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOAH?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOAH Members?

Yes

TYPE OF REAGENT AVAILABLE	RELATED DIAGNOSTIC TEST	PRODUCED/ PROVIDE	AMOUNT SUPPLIED NATIONALLY (ML, MG)	AMOUNT SUPPLIED INTERNATIONALLY (ML, MG)	NO. OF RECIPIENT WOAH MEMBER COUNTRIES	COUNTRY OF RECIPIENTS
Reference antigen/antisera	HI H1-H16	BOTH	12	0	0	
AGID reagents	AGID	BOTH	57607	2421	7	America
Positive amplification controls	rRT-PCR (matrix, H5,H7)	BOTH	9 (180 aliquots)	0	0	
Extraction controls	rRT-PCR	BOTH	294	0	0	
Proficiency test panels (avian and swine)	rRT-PCR	BOTH	2740	0	0	
Proficiency test panels (12 samples 1 ml each)	AGID	BOTH	732	36	3	America Asia and Pacific

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOAH Members?

Not applicable

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

Yes

NAME OF THE NEW TEST OR DIAGNOSTIC METHOD DEVELOPED	DESCRIPTION AND REFERENCES (PUBLICATION, WEBSITE, ETC.)
rRT-PCR	H5 2.3.4.4 real-time PCR assays in process

7. Did your laboratory validate diagnostic methods according to WOAH Standards for the designated pathogen or disease?

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

9. Did your laboratory validate vaccines according to WOAH Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOAH Members?

No

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOAH Member?

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOAH Members other than the own?

No

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:
"NVSL works with another unit within USDA for distribution of analyzed data. https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/avian-influenza/2022-hpai "

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

Yes

IF THE ANSWER IS YES, PLEASE PROVIDE DETAILS OF THE DATA COLLECTED:
"NVSL works with another unit within USDA for distribution of analyzed data. https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/avian-influenza/2022-hpai " over 1000 avian influenza full genomes

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by

category and list the details in the box)

a) Articles published in peer-reviewed journals:

2
Outbreak of Highly Pathogenic Avian Influenza H5N1 in New England Seals
https://www.biorxiv.org/content/10.1101/2022.07.29.501155.abstract
Intercontinental movement of H5 2.3. 4.4 Highly Pathogenic Avian Influenza A (H5N1) to the United States, 2021
https://www.biorxiv.org/content/10.1101/2022.02.11.479922.abstract
Intercontinental movement of highly pathogenic avian influenza A (H5N1) clade 2.3. 4.4 virus to the United States, 2021
Pandemic lineage 2009 H1N1 influenza A virus infection in farmed mink in Utah
https://journals.sagepub.com/doi/pdf/10.1177/10406387211052966
Evaluation of PCR-based hemagglutinin subtyping as a tool to aid in surveillance of avian influenza viruses in migratory wild birds
https://www.sciencedirect.com/science/article/pii/S0166093422001410
Evolution of the North American Lineage H7 Avian Influenza Viruses in Association with H7 Virus's Introduction to Poultry
https://journals.asm.org/doi/abs/10.1128/jvi.00278-22
Transmission dynamics of low pathogenicity avian influenza (H2N2) viruses in live bird markets of the Northeast United States of America, 2013–2019 https://academic.oup.com/ve/article-abstract/8/1/veac009/6525333
Rapid evolution of A (H5N1) influenza viruses after intercontinental spread to North America

b) International conferences:

4

c) National conferences:

1
February 2022: VIRTUAL Live Bird Market Working Group Meeting
October 2022: United States Animal Health Association and American Association of Veterinary Laboratory Diagnosticians Annual Meeting
June 2022: National Poultry Improvement Program Biennial General Conference Committee Meeting
Aug 2022: NPIP Diagnostic Workshop in Georgia
Animal Influenza Viruses Gap Analysis Workshop
Aug 2022: AVMA American Association of Avian Pathologist Conference
AAVLD June 2022:Highly pathogenic avian influenza virus infection of raptors in the upper Midwest
Nov 2022: American College of Veterinary Pathologists

d) Other (Provide website address or link to appropriate information):

3
"Under the Microscope
Protecting Chickens from Highly Pathogenic Avian Influenza"
ACVM: HPAI Update: https://www.acvm.us/
HPAI sequencing and genetics at the monthly NASAHO call
Avian Influenza panel at Iowa Egg Producers meeting
Advanced Virus Detection Technologies Interest Group (AVDTIG) Subgroup AB meeting related to sample preparation for whole genome sequencing and detection of adventitious agents
Participated with international regionalization evaluations for avian influenza and Newcastle disease in two countries

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOAH Members?

No

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
American Association for Laboratory Accreditation (A2LA)	pdf	2526-01 - Biological Field of Testing A2LA certificate - Ames valid through 2023 (1).pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
AGID, HI/NI, Real time RT-PCR, Virus Isolation, In vivo pathogenicity (IVPI)	ISO 17025 Biological Testing

20. Does your laboratory maintain a “biorisk management system” for the pathogen and the disease concerned?

Yes

Biosafety, Security and Incident Response Plan and Biological Risk Assessments: NVSL-MAN-0018 and NVSL-WI-1207

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOAH?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOAH?

No

TOR10: NETWORK WITH WOAH REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOAH Reference Laboratories designated for the same pathogen or disease?

Yes

24. Are you a member of a network of WOAH Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS/ ORGANISING WOAH REF. LAB.

25. Did you organise or participate in inter-laboratory proficiency tests with WOAH Reference Laboratories designated for the same pathogen?

Yes

PURPOSE OF THE PROFICIENCY TESTS: 1	ROLE OF YOUR REFERENCE LABORATORY (ORGANISER/ PARTICIPANT)	NO. PARTICIPANTS	PARTICIPATING WOAH REF. LABS/ ORGANISING WOAH REF. LAB.
Detection and subtyping	Participant	unknown	CSIRO

26. Did your laboratory collaborate with other WOAH Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

Yes

TITLE OF THE PROJECT OR CONTRACT	SCOPE	NAME(S) OF RELEVANT WOAH REFERENCE LABORATORIES
Studies in Poultry Transmission, Airborne Spread and Mitigation Tools for Avian Influenza and Newcastle Disease in the USA	Interagency agreement	USDA ARS National Poultry Center Southeast Poultry Research Laboratory
Genetic characteristics of zoonotic influenza viruses	Data contributions to OFFLU for the twice yearly WHO Vaccine Composition Consultations	WOAH Reference Laboratories for Animal Influenza

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAH Reference Laboratories for the same pathogen?

Yes

Purpose for inter-laboratory test comparisons1	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOAH Member Countries
Administered by NVSL and required to conduct official testing in the U.S.; shipped internationally by request	Administered by NVSL and required to conduct official testing in the U.S.	55	

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOAH?

No

29. Additional comments regarding your report:

Some testing and activities have been impacted by the ongoing H5 2.3.4.4 HPAI outbreak affecting wild birds and poultry with sporadic spilllovers into mammals; and the ongoing vigilance for SARS-CoV-2 in animals. The IAV viruses characterized from U.S. poultry during 2022 were predominantly Eurasian lineage goose/Guangdong H5N1 clade 2.3.4.4b.