

# OIE Reference Laboratory Reports Activities

## *Activities in 2019*

**This report has been submitted : 2020-01-16 19:05:29**

<b>Name of disease (or topic) for which you are a designated OIE Reference Laboratory:</b>	Highly and low pathogenic avian influenza
<b>Address of laboratory:</b>	USDA, APHIS, VS, DB National Veterinary Services Laboratories 1920 Dayton Avenue, P.O. Box 844 Ames, Iowa 50010 UNITED STATES OF AMERICA
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<b>Website:</b>	<a href="http://www.aphis.usda.gov/nvsl">www.aphis.usda.gov/nvsl</a>
<b>Name (including Title) of Head of Laboratory (Responsible Official):</b>	Dr. Karl Hochstein, Acting Director, National Veterinary Services Laboratories, DB, VS, APHIS, USDA
<b>Name (including Title and Position) of OIE Reference Expert:</b>	Dr. Mia Torchetti, Director, Diagnostic Virology Laboratory, National Veterinary Services Laboratories, DB, VS, APHIS, USDA
<b>Which of the following defines your laboratory? Check all that apply:</b>	Governmental

**ToR 1: To use, promote and disseminate diagnostic methods validated according to OIE Standards**

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 OIE Manual (Yes/No)	Total number of test performed last year	
		Nationally	Internationally
Indirect diagnostic tests		Nationally	Internationally
Agar gel immunodiffusion (AGID)	yes	241	0
Hemagglutination-inhibition (HI) antibody subtype identification (H1-16)	yes	8471	0
Neuraminidase-inhibition (NI) antibody subtype identification (N1-9)	yes	2682	0
Direct diagnostic tests		Nationally	Internationally
Real-time RT-PCR (IAV, subtyping)	yes	5782	14
Virus Isolation (positive/total samples)	yes	358/4193	7/25
Molecular pathotype (Sanger)	yes	311	0
In vivo pathotype (IVPI)	yes	31	3
Whole genome sequencing	yes	460	16

**ToR 2: To develop reference material in accordance with OIE requirements, and implement and promote the application of OIE Standards. To store and distribute to national laboratories biological reference products and any other reagents used in the diagnosis and control of the designated pathogens or disease.**

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

No

3. Did your laboratory supply standard reference reagents (non OIE-approved) and/or other diagnostic reagents to OIE Member Countries?

Yes

Type of reagent available	Related diagnostic test	Produced/ provide	Amount supplied nationally (ml, mg)	Amount supplied internationally (ml, mg)	No. of recipient OIE Member Countries	Region of recipients
Reference antigen	HI H1-H16	both	0 ml	116 ml	2	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
Reference antisera	HI H1-H16	both	0 ml	82 ml	2	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
AGID reagents	AGID	both	90,129 ml	8,561 ml	11	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
Positive amplification controls	rRT-PCR (matrix, H5,H7)	both	3.4 ml	0.9 ml	2	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
Positive extraction control	rRT-PCR	both	128 ml	20 ml	2	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
Negative extraction control	rRT-PCR	both	167 ml	20 ml	2	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East

Proficiency test panels (avian and swine)	rRT-PCR	both	4,056 ml	24 ml	2	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East
Proficiency test panels 12 samples 1 ml each	AGID	both	660 ml	10 ml	2	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East

4. Did your laboratory produce vaccines?

No

5. Did your laboratory supply vaccines to OIE Member Countries?

No

***ToR 3: To develop, standardise and validate, according to OIE Standards, new procedures for diagnosis and control of the designated pathogens or diseases***

6. Did your laboratory develop new diagnostic methods validated according to OIE Standards for the designated pathogen or disease?

No

7. Did your laboratory develop new vaccines according to OIE Standards for the designated pathogen or disease?

No

***ToR 4: To provide diagnostic testing facilities, and, where appropriate, scientific and technical advice on disease control measures to OIE Member Countries***

8. Did your laboratory carry out diagnostic testing for other OIE Member Countries?

Yes

Name of OIE Member Country seeking assistance	Date (month)	No. samples received for provision of diagnostic support	No. samples received for provision of confirmatory diagnoses
DOMINICAN (REP.)	July	0	17
CHILE	September	0	5

9. Did your laboratory provide expert advice in technical consultancies on the request of an OIE Member Country?

Yes

Name of the OIE Member Country receiving a technical consultancy	Purpose	How the advice was provided
DOMINICAN (REP.)	Provided consultation on virus isolation (VI) and PCR diagnostic testing for avian influenza virus (AIV) and Newcastle disease virus (NDV).	Email and phone
HONDURAS	Provided consultation on rRT-PCR diagnostic testing for avian influenza virus (AIV) and Newcastle disease virus (NDV) and reagent procurement.	Email
EL SALVADOR	Provided consultation on rRT-PCR diagnostic testing for avian influenza virus (AIV) and Newcastle disease virus (NDV) and reagent procurement.	Email

***ToR 5: To carry out and/or coordinate scientific and technical studies in collaboration with other laboratories, centres or organisations***

10. Did your laboratory participate in international scientific studies in collaboration with OIE Member Countries other than the own?

No

***ToR 6: To collect, process, analyse, publish and disseminate epizootiological data relevant to the designated pathogens or diseases***

11. Did your Laboratory collect epizootiological data relevant to international disease control?

Yes

If the answer is yes, please provide details of the data collected:

2. USDA-APHIS (2019). Epidemiologic and other analyses of avian influenza affected poultry flocks: February, 2019 Report. United States Department of Agriculture: Animal and Plant Health Inspection Service: Veterinary Services: Center for Epidemiology and Animal Health. Fort Collins, CO. April 2019. 72 pgs.  
[https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/avian/downloads/analysis2019.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/avian/downloads/analysis2019.pdf)

12. Did your laboratory disseminate epizootiological data that had been processed and analysed?

Yes

If the answer is yes, please provide details of the data collected:

2. USDA-APHIS (2019). Epidemiologic and other analyses of avian influenza affected poultry flocks: February, 2019 Report. United States Department of Agriculture: Animal and Plant Health Inspection Service: Veterinary Services: Center for Epidemiology and Animal Health. Fort Collins, CO. April 2019. 72 pgs.  
[https://www.aphis.usda.gov/animal\\_health/animal\\_diseases/avian/downloads/analysis2019.pdf](https://www.aphis.usda.gov/animal_health/animal_diseases/avian/downloads/analysis2019.pdf)

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

a) Articles published in peer-reviewed journals: 1

1. Dong-Hun Lee, Mary Lea Killian, Mia K. Torchetti, et al. Intercontinental spread of Asian-origin H7 avian influenza viruses by captive bird trade in 1990's. *Infect Gen Evol.* 2019; 73: 146-150.  
<https://doi.org/10.1016/j.meegid.2019.04.028>
2. Jimenez-Bluhm P, Bravo-Vasquez N, Torchetti MK, et al. Low pathogenic avian influenza (H7N6) virus causing an outbreak in commercial Turkey farms in Chile. *Emerg Microbes Infect.* 2019;8(1):479-485.  
[doi:10.1080/22221751.2019.1595162](https://doi.org/10.1080/22221751.2019.1595162)
3. Mathieu, C, Gonzalez, A, Garcia, A, et al. H7N6 low pathogenic avian influenza outbreak in commercial turkey farms in Chile caused by a native South American Lineage. *Transbound Emerg Dis.* 2019; 00: 1- 11.  
<https://doi.org/10.1111/tbed.13166>
4. Powell JD, Abente EJ, Torchetti MK, Killian ML, Vincent AL. An avian influenza virus A(H7N9) reassortant that recently emerged in the United States with low pathogenic phenotype does not efficiently infect swine. *Influenza Other Respir Viruses.* 2019;13(3):288-291. [doi:10.1111/irv.12631](https://doi.org/10.1111/irv.12631)

b) International conferences: 4

1. February 15-21, 2019: WHO Composition of Influenza Virus Vaccines, China
2. June 17-23, 2019: EU AI/ND Meeting, Padua, Italy

c) National conferences: 3

1. February 20-21, 2019: Live Bird Market Working Group Business Meeting, New York
2. March 12, 2019: North Central Avian Diseases Conference (NCADC), Minneapolis, MN
3. June 12-14, 2019: 2019 National Poultry Improvement Plan General Conference Committee Meeting, Albuquerque, NM
4. October 21-25, 2019: United States Animal Health Association Annual Meeting, Providence, RI

d) Other:

(Provide website address or link to appropriate information) 2

1. USDA APHIS Avian Influenza Website  
<https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/avian-influenza/defend-the-flock-lpai-info>
2. USDA-APHIS (2019). Epidemiologic and other analyses of avian influenza affected poultry flocks: February, 2019 Report. United States Department of Agriculture: Animal and Plant Health Inspection Service: Veterinary Services: Center for Epidemiology and Animal Health. Fort Collins, CO. April 2019. 72 pgs.
3. United States Animal Health Association: Committee on Poultry and Other Avian Species  
[https://www.usaha.org/upload/Committee/TransDisPoultry/Torchetti\\_NVSL\\_AI\\_ND\\_UPDATE\\_2019.pdf](https://www.usaha.org/upload/Committee/TransDisPoultry/Torchetti_NVSL_AI_ND_UPDATE_2019.pdf)

**ToR 7: To provide scientific and technical training for personnel from OIE Member Countries****To recommend the prescribed and alternative tests or vaccines as OIE Standards**

14. Did your laboratory provide scientific and technical training to laboratory personnel from other OIE Member Countries?

Yes

- a) Technical visits: 0
- b) Seminars: 0
- c) Hands-on training courses: 1
- d) Internships (>1 month): 0

Type of technical training provided (a, b, c or d)	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
c: April 2019: Training in Sanger Sequencing Methods for Newcastle Disease and Avian Influenza	Peru	1

**ToR 8: To maintain a system of quality assurance, biosafety and biosecurity relevant for the pathogen and the disease concerned**

15. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
ISO 17025 Biological Testing	2019 A2LA Accreditation Certification.pdf

16. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
AGID	American Association for Laboratory Accreditation (A2LA)
Hemagglutination-inhibition	A2LA
Neuraminidase-inhibition	A2LA
Real-Time RT-PCR tests	A2LA
Virus Isolation	A2LA
In vivo pathogenicity (IVPI)	A2LA

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

Yes

(See *Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, Chapter 1.1.4*)

### ***ToR 9: To organise and participate in scientific meetings on behalf of the OIE***

18. Did your laboratory organise scientific meetings on behalf of the OIE?

No

19. Did your laboratory participate in scientific meetings on behalf of the OIE?

No

### ***ToR 10: To establish and maintain a network with other OIE Reference Laboratories designated for the same pathogen or disease and organise regular inter-laboratory proficiency testing to ensure comparability of results***

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

Yes

21. Was your laboratory involved in maintaining a network with OIE Reference Laboratories designated for the same pathogen or disease by organising or participating in proficiency tests?

Yes

Purpose of the proficiency tests: <sup>1</sup>	Role of your Reference Laboratory (organiser/ participant)	No. participants	Participating OIE Ref. Labs/ organising OIE Ref. Lab.
Ring Trial	participant	unknown (report pending)	USDA NVSL/CSIRO AAHL

<sup>1</sup> validation of a diagnostic protocol: specify the test; quality control of vaccines: specify the vaccine type, etc.

22. Did your laboratory collaborate with other OIE 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 OIE Reference Laboratories
Studies in Poultry Transmission, Airborne Spread and Mitigation Tools for Avian Influenza and Newcastle Disease in the USA	Avian influenza, Newcastle disease interagency agreement	USDA ARS National Poultry Center Southeast Poultry Research Laboratory

**ToR 11: To organise inter-laboratory proficiency testing with laboratories other than OIE Reference Laboratories for the same pathogens and diseases to ensure equivalence of results**

23. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than OIE Reference Laboratories for the same disease?

Yes

Note: See Interlaboratory test comparisons in: Laboratory Proficiency Testing at: <http://www.oie.int/en/our-scientific-expertise/reference-laboratories/proficiency-testing> see point 1.3

Purpose for inter-laboratory test comparisons <sup>1</sup>	No. participating laboratories	Region(s) of participating OIE Member Countries
National Animal Health Laboratory Approval, and international requests for panels	Domestic 57 PCR; 55 AGID, International 2 PCR; 2 AGID	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East

***ToR 12: To place expert consultants at the disposal of the OIE***

24. Did your laboratory place expert consultants at the disposal of the OIE?

No

25. Additional comments regarding your report:

- The IAV viruses isolated from U.S. poultry during 2019 were low pathogenicity avian influenza viruses of North American wild bird lineage. No Eurasian H5 or H7 viruses have been detected in poultry or wild birds.