

OIE Reference Laboratory Reports Activities

Activities in 2019

This report has been submitted : 2020-01-16 18:58:07

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	Newcastle disease
Address of laboratory:	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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Name (including Title) of Head of Laboratory (Responsible Official):	Dr. Karl Hochstein, Acting Director, National Veterinary Services Laboratories, DB, VS, APHIS, USDA
Name (including Title and Position) of OIE Reference Expert:	Dr. Mia Torchetti, DVL Director, Diagnostic Virology Laboratory, National Veterinary Services Laboratories, DB, VS, APHIS, USDA
Which of the following defines your laboratory? Check all that apply:	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
Hemagglutination-inhibition (HI) antibody identification (APMV-1)	yes	161	0
Direct diagnostic tests		Nationally	Internationally
Real-time RT-PCR (APMV-1, vNDV)	yes	976	5
APMV-1 (positive/total samples)	yes	613/3,066	4/31
Molecular pathotype (Sanger)	yes	972	4
In vivo pathotype (ICPI)	yes	46	0
Whole genome sequencing (count by isolate)	yes	459	4

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
Positive Amplification	rRT-PCR	both	1.2 ml	0.05 ml	1	<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 Antigen	HI	both	210 ml	86 ml	1	<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 Antisera	HI	both	2 ml	8 ml	1	<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	76 ml	10 ml	1	<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	rRT-PCR	both	3,040 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

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.)	December	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:
1. USDA APHIS Virulent Newcastle Disease Website https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/virulent-newcastle/vnd 2. July 2019 USDA Epidemiologic Analyses of Virulent Newcastle Disease in Poultry in California https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/ai/epi-analyses-vnd-in-backyard-birds-in-california-july.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:
1. USDA APHIS Virulent Newcastle Disease Website https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/virulent-newcastle/vnd 2. July 2019 USDA Epidemiologic Analyses of Virulent Newcastle Disease in Poultry in California https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/ai/epi-analyses-vnd-in-backyard-birds-in-california-july.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. Dimitrov KM, Abolnik C, Afonso CL, et al. Updated unified phylogenetic classification system and revised nomenclature for Newcastle disease virus. *Infect Genet Evol.* 2019;74:103917.

doi:10.1016/j.meegid.2019.103917

2. Kiril M. Dimitrov, Helena L. Ferreira, Mary J. Pantin-Jackwood, et al. Pathogenicity and transmission of virulent Newcastle disease virus from the 2018-2019 California outbreak and related viruses in young and adult chickens. *Virol.* 2019;531:203-218: 0042-6822. <https://doi.org/10.1016/j.virol.2019.03.010>

b) International conferences: 4

1. June 17-23, 2019: EU AI/ND Meeting, Padua, Italy

c) National conferences: 2

1. February 20-21, 2019: Live Bird Market Working Group, New York, NY

2. March 12, 2019: North Central Avian Diseases Conference (NCADC), Minneapolis, MN

3. June 12-14, 2019: National Poultry Improvement Program General 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) 3

1. USDA APHIS Virulent Newcastle Disease Website

<https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/virulent-newcastle/vnd>

2. July 2019 USDA Epidemiologic Analyses of Virulent Newcastle Disease in Poultry in California

https://www.aphis.usda.gov/animal_health/downloads/animal_diseases/ai/epi-analyses-vnd-in-backyard-birds-in-california-july.pdf

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

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
Hemagglutination-inhibition	American Association for Laboratory Accreditation (A2LA)
Real-time RT-PCR	A2LA
Virus Isolation	A2LA
In vivo pathogenicity assay	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?

No

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 ¹	No. participating laboratories	Region(s) of participating OIE Member Countries
National Animal Health Laboratory Approval, and international requests for panels	Domestic 57 PCR, International 2 PCR	<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 National Veterinary Services Laboratories (NVSL) confirmed vNDV (genotype Vb) on 17 May 2018. This was the first case of vND, formerly referred to as exotic Newcastle disease, in the U.S. since 2003. Refer to USDA APHIS Newcastle disease page <https://www.aphis.usda.gov/aphis/ourfocus/animalhealth/animal-disease-information/avian/virulent-newcastle/vnd>

Regarding the reduction in hemagglutination inhibition testing for APMV-1: in the U.S. this testing is largely conducted at the state level, and recently some labs have received approvals to conduct export testing as well, resulting in a significant reduction in testing at NVSL.

