OIE Reference Laboratory Reports Activities

Activities in 2016

This report has been submitted : 2017-01-20 13:25:40

Name of disease (or topic) for which you are a designated OIE Reference Laboratory:	West Nile Fever
Address of laboratory:	Via Campo Boario 64100 Teramo ITALY
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Name (including Title) of Head of Laboratory (Responsible Official):	Prof.Mauro Mattioli General Director Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise, "G. Caporale"
Name (including Title and Position) of OIE Reference Expert:	Federica Monaco, Head of the diagnosis and surveillance of exotic viral diseases of animals laboratory. Istituto Zooprofilattico Sperimentale dell'Abruzzo e del Molise "G. Caporale"
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	
Indirect diagnostic tests		Nationally	Internationally
ELISA IgG	Yes	654	9 Croazia, 437 Tunisia
ELISA IgM	Yes	511	9 Croazia
Virus Neutralization (microtitre)	Yes	968	9 Croatia, 17 Tunisia
Plaque Reduction neutralization test (PRNT)	Yes	-	-
Direct diagnostic tests		Nationally	Internationally
Virus isolation (C6/36 and Vero)	Yes	66	-
Real-time RT-PCR specific for WNV lineage 1 and Lineage 2	Yes	924	849 Tunisia, 21 Namibia
Real-time RT-PCR specific for WNV lineage 1	Yes	-	-
Real time RT-PCR Flavivirus group	No	11	21 Namibia
Whole genome sequencing	No	-	-

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
WNV strain B956 (inactivated)	Real-time RT-PCR	Produced and provided	12 ml	-	1	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East
WNV strain Eg101 (inactivated)	Real-time RT-PCR	Produced and provided	10 ml	-	1	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐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?

Yes

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

No

Name of the new test or diagnostic method or vaccine developed	Description and References (Publication, website, etc.)
Development of a SYBR Green real-time PCR assay for the simultaneous detection and differentiation of West Nile Virus lineages I and II, Usutu, Zika and other Flaviviridae in mosquitoes	Paper submitted to Parasites & Vectors

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
CROATIA	April, September, November	-	9 sera
NAMIBIA	January	21 mosquitoes pools	-
TUNISIA	January	-	8 sera
TUNISIA	December	437 sera	-
TUNISIA	December	410 cloacal swabs, 2 mosquitoes pools	-

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
TURKEY	To improve the technical knowledge and skills of Etlik Veterinary Control Central Research Institute (EVCCRI) staff and to support the Institute in the process that will eventually lead to acquire the status of OIE reference laboratory for West Nile Disease. In particular, the objectives are: to improve diagnostic capabilities of the EVCCRI to meet OIE Standards; apply improved quality control measures at the WNV of EVCCRI; strengthen the role of EVCI as a NRL in Turkey for WNV; introduce epidemiological tools for WNV surveillance and control.	In loco assistance in the framework of the OIE Twinning Project on West Nile Disease between Etlik Veterinary Control Central Research Institute (EVCCRI) and Istituto Zooprofilattico dell'Abruzzo e del Molise "G. Caporale" (IZSAM)
LEBANON	To provide support in defining the possible WN surveillance activities in the Country	Training on the job in IZSAM and in loco assistance (Technical workshop) in the framework of the OIE Twinning between the Ministry of Agriculture of Lebanon and the Italian Ministry of Health, through the IZSAM
LEBANON	To improve the technical knowledge and skills of personnel from the national laboratory of Fanar (IRAL) on WNV diagnostic assays and the interpretation of the results	Hands-on training in the framework of the Twinning project between the Ministry of Agriculture of Lebanon and the Italian Ministry of Health, through the IZSAM
ALGERIA	Training on WNV diagnostic assays, biosafety measures for viral manipulation in the laboratory and quality assurance system	Technical assistance in loco and organization of a ring trial with the participating laboratories in the framework of the EU Twinning project «Mise à niveau des laboratoires de l'Institut national de la médecine vétérinaire aux standards européens et internationaux (DZ/13/ENP/HE/17) »
TUNISIA	To confirm preliminary positive results and to identify potential surveillance activities in the affected area	Remote assistance
TUNISIA	Training on WNV diagnostic assays and the interpretation of results in surveillance activities	Hands-on training in IZSAM laboratories for a PhD student
UNITED ARAB EMIRATES	Training period on "Tissue culture techniques (virus isolation and identification) and animal module, egg embryo infection techniques	Hands-on training in IZSAM in the framework of the OIE Twinning project between ADFCA-Animal Health Centre for diagnostic and research, in Abu Dhabi, United Arab Emirates and the network of the network of Istituti Zooprofilattici Sperimentali (IIZZSS) of Brescia (IZSLER), Palermo (IZSS) and Teramo (IZSAM), Italy (CVO- Ministry of Health).

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?

Yes

Title of the study	Duration	Purpose of the study	Partners (Institutions)	OIE Member Countries involved other than your country
Origin and evolution of recent vector-borne virus incursions in the Mediterranean Basin	3 years	Assessment of the role played by the most common species of migrating birds in the new recent WNV and USUV incursions; Study on the prevalence and possible genetic evolution of USUV and WNV isolates circulating in Italy and in Mediterranean Countries correlated to their pathogenicity; Development of diagnostic techniques to identify and characterize the different strains of Flaviviruses.	Institut de la Recherche Vétérinaire Biopharma Croatian Veterinary Institute	CROATIA MOROCCO TUNISIA
Risk of introduction and spread of vector-borne viruses in Italy	3 years	Assessment and comparison of vector competency of the Italian populations of Culex pipiens in WNV lineages 1 and 2 transmission.	Etlik Veterinary Control Central Research Institute	TURKEY
Study on the clinical and epidemiological aspects of vector borne diseases and the risk factors for their emergence	3 years	Detection and characterization of Flaviviruses circulating in the Etosha National Park (ENP, Namibia) Investigation of the transmission cycles in the area between insect and vertebrate populations; Overwintering/interepidemic mechanisms; Assessment of the wild vertebrate role in the epidemiology of Flaviviruses in ENP.	Central Veterinary Laboratory (Namibia); Ministry of Environment and Tourism of Namibia	NAMIBIA
Fact-sheet on West Nile Fever (WNF)	6 months	The objective of the work is to draft a comprehensive, succinct and up to date fact-sheet on the disease profile, impact and control options of WNF covering all the criteria laid down in Article 7 of the Regulation on transmissible animal diseases (“Animal Health Law” - AHL) for listing and categorisation of diseases as requested by the European Commission for listing and categorisation of diseases	Animal Health and Welfare Team of the Animal and Plant Health Unit of European Food Safety Agency (EFSA)	

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

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

Yes

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: 7
1. Pautasso A., Radaelli M., Ballardini M., Francese D., Verna F., Modesto P., Grattarola C., Desiato R., Bertolini S., Vitale N. Ferrari A., Rossini I., Accorsi A., Mosca A., Monaco F., Savini G., Prearo M., Mignone W., Chiavacci, L., Casalone C. Detection of West Nile and Usutu viruses in Italian free areas: entomological surveillance in Piemonte and Liguria regions, 2014. 2016. Vector borne and Zoonotic Diseases. DOI: 10.1089/vbz.2015.1851.
2. Monaco F., Çizmeci Ş., Polci A., Portanti O., Barut F., Deniz A., Cosseddu G.M., Pişkin Ç., Savini G. First evidence of West Nile Virus Lineage 2 circulation in Turkey. 2016. Vet Ital. 2016 Mar 31;52(1):77-81. doi: 10.12834/VetIt.838.4169.1.
3. Rizzo C., Napoli C., Venturi G., Pupella S., Lombardini L., Calistri P., Monaco F.,Cagarelli R., Angelini P., Bellini R., Tamba M., Piatti A., Russo F., Palù G., Chiari M., Lavazza A., Bella A., and the Italian WNV surveillance working group. West Nile virus transmission from 2008 to 2015: results from the integrated surveillance system in Eurosurveillance. Eurosurveillance, Volume 21, Issue 37, 15 September 2016.
4. Grottola A., Marcacci M., Tagliazucchi S., Gennari W., Di Gennaro A., Orsini M., Monaco F., Marchegiano P., Marini V., Meacci M., Rumpianesi F., Lorusso A., Pecorari M., Savini, G. Usutu virus infections in humans: a retrospective analysis in the municipality of Modena, Italy. Clin Microbiol Infect. 2016 Sep 24. pii: S1198-743X(16)30425-6. doi: 10.1016/j.cmi.2016.09.019.
5. Di Girolamo N., Selleri P., Di Gennaro A., Maldera M., Nardini G., Morandi B., Muzzeddu M., Origgi F., Savini G. Lack of detection of West Nile virus in an islander population of chelonians during a West Nile virus outbreak. Vet Ital. 2016 Jun 30;52(2):169-73. doi: 10.12834/VetIt.356.1600.2.
6. Ben Hassine T., Amdouni J., Monaco F., Giovanni S.,Sghaier S., Ben Selimen I., Chandoul W., Ben Hamida K, Hammami S. First Serological investigation of emerging vector borne diseases in dromedaries in Tunisia: West Nile, bluetongue, epizootic hemorrhagic disease and Rift Valley fever. Accepted for publication by Onderstepoort Journal of Veterinary Research.
7. Mancini G. Montarsi F., Calzolari M., Capelli G., Dottori M., Ravagnan S., Lelli D., Chiari M., Santilli A., Quaglia M., Federici V., Cipriani M., Monaco F., Goffredo M., Savini G.. “Mosquito species involved in West Nile and Usutu viruses circulation in Italy”. Vet Ital., in press.

b) International conferences: 3
1. Monaco F. WNV overview with special emphasis on the Mediterranean Basin. Oral presentation at the final meeting of the OIE Twinning Project on West Nile Disease between the Etlik Veterinary Control Central Research Institute (EVCCRI) and the Istituto Zooprofilattico dell’Abruzzo e del Molise. Pendik, Istanbul, Turkey, January, 26th-27th, 2016.
2. Cosseddu G.M. “West Nile virus: evolution and diagnosis in the framework of the Italian experience and surveillance system”. Oral presentation in the workshop on surveillance plan for vector borne diseases: bluetongue and West Nile Disease. Beirut, Lebanon, 30th November - 2nd December, 2016.
3. Braks M., Goffredo M., De Swart M., Mancini G., Dhollander S., Versteirt V. “Risk of vector-borne diseases for the EU: entomological aspects.” Book of Abstracts, E-SOVE 20th Conference, Lisbon (Portugal), October 3- 7, 2016, pp.132.

c) National conferences: 5
1. Calistri P. “WNV: le attività di sorveglianza veterinaria” in the congress “La sorveglianza delle malattie virali emergenti e riemergenti in Italia: Focus su Zika, West Nile, e altre arbovirosi”, Rome, Istituto Superiore di Sanità, 19 April 2016.
2. Cosseddu G.M., Di Provvido A., Scacchia M., Pinoni C., Polci A., Di Gennaro A., Spedicato M., Carmine I., Savini G., Capobianco Dondona A., Iapaolo F., Valleriani F., Yaya B., EL Mamy A.B., Monaco F. Sorveglianza di malattie

virali emergenti in Mauritania in bovini e cammelli prelevati al macello. XVII S.I.Di.L.V. National Congress, Pacengo di Lazise (VR), 28-30 September 2016.
3. Sozio G., Cosseddu G.M., Di Domenico M., Di Gennaro A., Conte F., Angelico G., Cammà C., Pascucci I., Monaco F. Sorveglianza sierologica per Hantavirus e Flavivirus nei roditori selvatici in Italia Centrale. VI Workshop of Veterinary Virology, Torino, 13-14 October 2016.
4. Monaco F. “La West Nile Disease: evoluzione ed adattamento nel panorama italiano”. Oral presentation in the workshop: “Aggiornamento su due delle principali malattie da vettori: bluetongue e West Nile disease”, Aosta, 13 December 2016.
5. Monaco F. “West Nile disease: evoluzione ed adattamento nel panorama italiano ed internazionale”. Oral presentation in the congress “Malattie emergenti e riemergenti”, Rome, 19-20 December 2016.

d) Other:
(Provide website address or link to appropriate information) 2
The public web site (www.izs.it) disseminating information and data on West Nile is kept continuously updated in order to have:
 the latest on the Italian and European Regulations issued by the Italian Ministry of Health;
 the current (2016) and past (2008-2015) epidemiological situations in Italy;
 maps on entomological, virological and serological surveillance activities;
 the current (2016) and past (2010-2015) epidemiological situations the Mediterranean Basin;
 scientific documents on-line.

In the framework of Arbozoonet project a WEB-GIS model has been designed and keep updated to collect and map WNF data coming from official notifications and from literature. (http://arbozoonet.izs.it/arbozoonet/)

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

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
a	United Arab Emirates	2
b	Lebanon	10
c	Lebanon	1
d	Tunisia	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 certified according to an International Standard?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)
UNI CEI EN ISO/IEC 17025:2005	Certificato_Accreditamento_2016.pdf

16. Is your laboratory accredited by an international accreditation body?

Yes

Test for which your laboratory is accredited	Accreditation body
ELISA IgG	ACCREDIA
ELISA IgM	ACCREDIA
Plaque Reduction neutralization test (PRNT)	ACCREDIA
Virus neutralization (microtitre format)	ACCREDIA
Real-time RT-PCR WNV lineage 1	ACCREDIA
Real-time RT-PCR WNV lineage 1 and Lineage 2	ACCREDIA

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?

Yes

National/ International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	Final Meeting of the OIE Twinning Project on West Nile Disease between Etlik Veterinary Control Central Research Institute (EVCCRI)	Etlik Veterinary Control Central Research Institute (EVCCRI)	01/16	Istanbul, Turkey	44

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

Yes

Title of event	Date (mm/yy)	Location	Role (speaker, presenting poster, short communications)	Title of the work presented
Final Meeting of the OIE Twinning Project on West Nile Disease	01/16	Istanbul, Turkey	Speaker	WNV overview with special emphasis on the Mediterranean Basin
Workshop on surveillance plan for vector borne diseases: bluetongue and West Nile Disease	11-12/16	Beirut, Lebanon	Speaker	West Nile virus: evolution, diagnosis and surveillance

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?

No

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
Harmonizing existing test methods	13	☐Africa ☐Americas ☐Asia and Pacific ☒Europe ☐Middle East
Determining a laboratory's capability to conduct specific diagnostic tests	2	☒Africa ☐Americas ☐Asia and Pacific ☐Europe ☐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?

Yes

Kind of consultancy	Location	Subject (facultative)
Review of the WNF chapter of the OIE Terrestrial Manual	Teramo, Italy	-

25. Additional comments regarding your report:

The activities related to the organization of the inter-laboratory proficiency test started in 2016 and will be concluded during the first two months of 2017