

OIE Collaborating Centres Reports Activities

Activities in 2021

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Title of collaborating centre:	Epidemiology Emerging Avian Diseases
Address of Collaborating Centre:	Vialle dell'Universita 10 35020 Legnaro Padova ITALY
Tel.:	+39-049 808.42.52
Fax:	+39-049 883.02.68
E-mail address:	pmulatti@izsvenezie.it
Website:	www.izsvenezie.it
Name of Director of Institute (Responsible Official):	Dr Antonia Ricci (General Director of the Istituto Zooprofilattico Sperimentale delle Venezie)
Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Dr Paolo Mulatti, DVM, MSc, PhD Executive Veterinarian Epidemiological Surveillance, Veterinary Legislation and Animal Welfare Laboratory
Name of writer:	Paolo Mulatti

ToR: To provide services to the OIE, in particular within the region, in the designated specialty, in support of the implementation of OIE policies and, where required, seek for collaboration with OIE Reference Laboratories

ToR: To identify and maintain existing expertise, in particular within its region

1. Activities as a centre of research, expertise, standardisation and dissemination of techniques within the remit of the mandate given by the OIE

Disease control	
Title of activity	Scope
Control measures for HPAI introduction and spread in the poultry production sector	Support to the Italian MoH for the drafting of Provisions to prevent the introduction and spread of AI into, and within, the poultry sector
Control measures for LPAI in domestic birds	Support to the Italian MoH and local veterinary authorities in defining the prevention measures for the uncontrolled spread of LPAI within the national poultry sector
GIS and spatial analysis services	Support the management of 2021 H5N1 Highly Pathogenic Avian Influenza (HPAI) emergency by means of GIS applications, technical support services, desktop GIS and web-based GIS services
West Nile Disease (WND) control activities in Northeast Italy	Coordination of 2021 WND surveillance and control activities in Northeast Italy. The main aim is to obtain information on the circulation of WND virus in the area through i) entomological surveillance, ii) control activities in the case of WND virus detection in equine farms, iii) screening for WND in dead wild birds
Epidemiology, surveillance, risk assessment, modelling	
Title of activity	Scope
National surveillance plan for avian influenza (AI)	Support the planning of 2020 AI surveillance activities in Italy by using a risk-based approach to define the risk level of different regions and poultry categories and the sample size for both domestic poultry and wild birds; Support to the Italian Ministry of Health, to assess changes of AI surveillance measures following the implementation of the new European Animal Health Law (Regulation 429/2016/EC)
Epidemiological support for HPAI in domestic poultry	Support for the collection and processing of epidemiological information and risk contacts during outbreaks of HPAI in poultry farms during the H5N1 HPAI epidemic in northern Italy; Application of statistical and mathematical models to assess the potential spread of HPAI, to further inform the implementation of disease control measures

Training, capacity building	
Title of activity	Scope
Collaboration with Kuwait Institute for Scientific Research (KISR) on Avian Influenza	Support KISR in analyzing epidemiological data related di Avian Influenza outbreak occurrence in Kuwait, in the context of the project "Development of an Early Warning System for the Control and Prevention of Disease in Kuwait", which falls within the Crisis Decision Support Program at the Environment and Life Sciences Research Center.
Zoonoses	
Title of activity	Scope
Collaboration with the Regional Public Health Service for the prevention of WND transmission to humans	Based on information of WNV circulation in 2021 in Veneto and Friuli Venezia Giulia regions, definition of the best time interval to implement WNV controls on human blood donors maximizing the benefit-cost ratio
Wildlife	
Title of activity	Scope
Active surveillance for avian influenza (AI) in wild birds	Implementation of an active surveillance plan in wild birds in the geographical areas classified at high-risk of AI exposure, by means of tracheal, cloacal and feather swab collection from trapped wild waterfowl.
Passive surveillance for AI in hunted wild birds	Implementation of a plan to monitor the AI presence in asymptomatic hunted birds, in geographical areas considered exposed to a higher risk of AI introduction
Study of residential wild waterfowl movements	Study of residential mallard ducks movements, via collection of GPS data - Third year of activity. Collection and processing of movement, behavioral and environmental data
Study of ornithocoenosis in proximity to poultry farms	Application of Species Distribution Models to assess the geographical distribution of wild bird species most commonly detected in proximity to poultry farms
Avian diseases	
Title of activity	Scope
Study of Minimum inhibitory concentration in avian bacterial pathogens	Monitoring the minimum inhibitory concentration in avian bacterial pathogens isolates in our competence area
Animal welfare	
Title of activity	Scope
Analysis of short-term and long-term effects of antimicrobial use on antimicrobial resistance in broilers and turkeys	Improvement of management in intensive poultry sector, understanding the possible associations between antimicrobial usage and antimicrobial resistance
Diagnosis, biotechnology and laboratory	
Title of activity	Scope

Development of new diagnostic methods to implementing the survey on avian mycoplasmosis	<p>Application and standardization of multilocus sequence typing (MLST) method to genotype and classify <i>Mycoplasma gallisepticum</i> amnd</p> <p>Application and standardization of minimum inhibitory concentration in avian mycoplasma species such as <i>Mycoplasma gallisepticum</i> and <i>Mycoplasma synoviae</i>.</p>
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ToR : To propose or develop methods and procedures that facilitate harmonisation of international standards and guidelines applicable to the designated specialty

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the surveillance and control of animal diseases, food safety or animal welfare

Proposal title	Scope/Content	Applicable area
Implementation of a standard for the collection and sharing of zone geographic component (GeoZone)	<p>The aim of the project is to develop a data model to spatially represent a zone, to explore both its applicability and validity, and to evaluate the resources needed for its full-scale implementation.</p> <p>GeoZone project - first year of activity:</p> <p>Definition of Use-case Scenarios, and Requirement analyses</p>	<p><input checked="" type="checkbox"/> Surveillance and control of animal diseases</p> <p><input type="checkbox"/> Food safety</p> <p><input type="checkbox"/> Animal welfare</p>

ToR: To establish and maintain a network with other OIE Collaborating Centres designated for the same specialty, and should the need arise, with Collaborating Centres in other disciplines

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

3. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres (CC), Reference Laboratories (RL), or organisations designated for the same specialty, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
OIE-FAO Reference Laboratory for Avian Influenza and Newcastle Disease	Italy	<p><input type="checkbox"/> Africa</p> <p><input type="checkbox"/> Americas</p> <p><input type="checkbox"/> Asia and Pacific</p> <p><input checked="" type="checkbox"/> Europe</p> <p><input type="checkbox"/> Middle East</p>	Training activities on Avian Influenza and Newcastle Disease

OIE Collaborating Centre for Epidemiology, modelling and surveillance	Italy	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	Partnership in the GeoZone OIE Project
OIE Collaborating Centre for Diagnosis, Epidemiology and Control of Animal Diseases in Tropical Regions	France	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	Partnership in the GeoZone OIE Project
OIE Collaborating Centre for Veterinary Epidemiology and Public Health	New Zealand	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Partnership in the GeoZone OIE Project
OIE Collaborating Centre for Animal Disease Surveillance Systems, Risk Analysis and Epidemiological Modelling	United States of America	<input type="checkbox"/> Africa <input checked="" type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Partnership in the GeoZone OIE Project

4. Did your Collaborating Centre maintain a network with other OIE Collaborating Centres, Reference laboratories, or organisations in other disciplines, to coordinate scientific and technical studies?

Yes

Name of OIE CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
OIE Collaborating Centre for Diseases at the Animal/Human Interface	Italy	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input type="checkbox"/> Asia and Pacific <input checked="" type="checkbox"/> Europe <input type="checkbox"/> Middle East	Studies and training activities on West Nile Virus
OIE Collaborating Centre for Diagnosis and Control of Animal Diseases and Related Veterinary product assessment in Asia	Japan	<input type="checkbox"/> Africa <input type="checkbox"/> Americas <input checked="" type="checkbox"/> Asia and Pacific <input type="checkbox"/> Europe <input type="checkbox"/> Middle East	Partnership in the GeoZone OIE Project

ToR: To place expert consultants at the disposal of the OIE.

5. Did your Collaborating Centre place expert consultants at the disposal of the OIE?

Yes

Name of expert	Kind of consultancy	Subject
Nicola Ferrè	OIE-WAHIS Key Users Committee	GIS related functionalities feedback to the OIE-WAHIS project management team
Paola Bonato	OIE-WHAIS administrative boundaries geospatial data update	Supporting the OIE-GIS technicians in updating the OIE-WHAIS administrative boundaries geospatial data
Matteo Mazzucato	OIE-WHAIS administrative boundaries geospatial data update	Supporting the OIE-GIS technicians in updating the OIE-WHAIS administrative boundaries geospatial data
Nicola Ferrè	OIE-WHAIS administrative boundaries geospatial data update	Supporting the OIE-GIS technicians in updating the OIE-WHAIS administrative boundaries geospatial data

ToR: To provide, within the designated specialty, scientific and technical training to personnel from OIE Member Countries

6. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by the OIE, to personnel from 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)	Content	Country of origin of the expert(s) provided with training	No. participants from the corresponding country
c	GIS course: The use of GIS in animal disease response - Distance learning course available at: https://www.izsvenezie.com/online-training-course-gis-oie/	Italy	30

ToR: To organise and participate in scientific meetings and other activities on behalf of the OIE

7. Did your Collaborating Centre organise or participate in the organisation of scientific meetings on behalf of the OIE?

No

ToR: To collect, process, analyse, publish and disseminate data and information relevant to the designated specialty

8. Publication and dissemination of any information within the remit of the mandate given by the OIE that may be useful to Member Countries of the OIE

a) Articles published in peer-reviewed journals: 6

Mughini-Gras L., Pasqualin D., Tarakdjian J., Santini A., Cunial G., Tonellato F., Schiavon E., Di Martino G. (2021). Short-term and long-term effects of antimicrobial use on antimicrobial resistance in broiler and turkey farms. *Avian Pathology* DOI: 10.1080/03079457.2021.2007850

Gobbo F, Fornasiero D, Marco MA De, Zecchin B, Mulatti P, Delogu M, Terregino C (2021). Active Surveillance for Highly Pathogenic Avian Influenza Viruses in Wintering Waterbirds in Northeast Italy , 2020 - 2021. *Microorganisms*. 2021;9:2188.

Calzolari M, Desiato R, Albieri A, Bellavia V, Bertola M, Bonilauri P, Callegari E, Canziani S, Lelli D, Mosca A, Mulatti P, Peletto S, Ravagnan S, Roberto P, Torri D, Pombi M, Di Luca M, Montarsi F (2021). Mosquitoes of the *Maculipennis* complex in Northern Italy. *Sci Rep*.11(1):6421 (2021). Available from: <https://doi.org/10.1038/s41598-021-85442-9>

Bottinelli M, Stefani E, Matucci A, Dal Prà M, Capello K, Zotti A, Catania S. Isolation of *Mycoplasma iowae* in turkey flocks with skeletal abnormalities: a retrospective study. *Avian Pathol*. 2021 May 10:1-8. doi: 10.1080/03079457.2021.1914816. Epub ahead of print. PMID: 33856239.

de Jong A, Youala M, Klein U, El Garch F, Simjee S, Moyaert H, Rose M, Gautier-Bouchardon AV, Catania S, Ganapathy K, Gyuranecz M, Möller Palau-Ribes F, Pridmore A, Ayling RD. Minimal inhibitory concentration of seven antimicrobials to *Mycoplasma gallisepticum* and *Mycoplasma synoviae* isolates from six European countries. *Avian Pathol*. 2021 Apr;50(2):161-173. doi: 10.1080/03079457.2020.1861216. Epub 2021 Jan 20. PMID: 33291970.

Pozzato N, D'Este L, Gagliazzo L, et al. Business intelligence tools to optimize the appropriateness of the diagnostic process for clinical and epidemiologic purposes in a multicenter veterinary pathology service. *Journal of Veterinary Diagnostic Investigation*. March 2021. doi:10.1177/10406387211003163

b) International conferences: 3

Mazzucato M, Marchetti G, Bonato P, Mulatti P, Fornasiero D, Barbujani M, Ferrè N (2021). E.V.E.: An Integrated System for the Management of Environmental Data, to Support Veterinary Epidemiology. 13th European Multicolloquium of Parasitology EMOP 2021- Changing Climate Changing Parasites. Belgrade, Serbia - October 12-16, 2021.

Fornasiero D, Mazzucato M, Bonato P, Accordi S, Michelutti A, Mulatti P (2021). Biodiversity and West Nile virus: understanding the ecology of viral circulation in northeastern Italy. 13th European Multicolloquium of Parasitology EMOP 2021- Changing Climate Changing Parasites. Belgrade, Serbia - October 12-16, 2021.

Fornasiero D, Mazzucato M, Bonato P, Barbujani M, Bertola M, Capelli G, Mulatti P (2021). Complexity of West Nile Virus Vector *Culex pipiens* population dynamics in northeastern Italy. 13th European Multicolloquium of Parasitology EMOP 2021- Changing Climate Changing Parasites. Belgrade, Serbia - October 12-16, 2021.

c) National conferences: 0

d) Other

(Provide website address or link to appropriate information): 0

9. Additional comments regarding your report:

The COVID-19 pandemic situation has heavily affected many of the training activities of the Collaborating Centre. An online course has been made available on GIS in Disease Response. As reported under the ToR 7, the course is available in English at the web page <https://www.izsvenezie.com/online-training-course-gis-oie/>. The course is available upon subscription, and the number of participants indicated in the table under the ToR 7 chapter might not reflect the actual number of expert taking the course during 2021.