

WOAH Collaborative Centre Reports Activities 2023

Activities in 2023

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Centre Information

Title of WOA Collaborating Centre	Laboratory Capacity Building
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Name Director of Institute (Responsible Official):	Dr Debbie Eagles
Name (including Title and Position) of Head of the Collaborating Centre (WOAH Contact Point):	Dr. Dwane O'Brien - Deputy Director, Australian Centre for Disease Preparedness
Name of the writer:	Dwane O'Brien

TOR1 AND 2: SERVICES PROVIDED

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

Category	Title of activity	Scope
Training, capacity building (true)	Biosafety workshops (supported by Australian Department of Foreign Affairs and Trade [DFAT] and the USA Defence Threat Reduction Agency (DTRA)	Biosafety workshops were conducted at ACDP for 14 participants from countries across SE Asia. The attending country participants included laboratory quality assurance personnel, biorisk/biosafety managers, laboratory leaders and technical laboratory staff. The workshop consisted of both lectures and practical instruction conducted within the high containment area of the ACDP.
Diagnosis, biotechnology and laboratory (true)	EID surveillance (supported by Australian Government Department of Foreign Affairs and Trade)	Surveillance of wildlife and livestock in high-risk locations (e.g. wet markets) and for EID's such as coronaviruses and influenza A viruses
Training, capacity building (true)	Australia Indonesia Health Security Program – Lab strengthening Component (supported by DFAT and managed by Cardno)	Priority laboratory diagnostic capacity building activities for Indonesia including Lumpy Skin Disease, ASF/CSF, FMD exclusion testing, and general laboratory QA and Biosafety.
Diagnosis, biotechnology and laboratory (true)	Provision of technical support to the Regional Animal Health Office No. 6 (RAHO-6) Laboratory, Ho Chi Minh City, Vietnam under the WOA	ACDP is providing technical support to RAHO-6 under a WOA twinning project. This will support RAHO-6 in its efforts towards an application to be a

	supported twinning project (also supported by Australian Government Department of Foreign Affairs and Trade)	future WOAHA Reference laboratory for selected swine diseases including African Swine Fever (ASF)
Diagnosis, biotechnology and laboratory (true)	Provision of technical support to Disease Investigation Centre Wates (DIC Wates) Indonesia, as part of twinning arrangements supported by the Australian Department of Foreign Affairs and Trade (DFAT) Centre for Health Security	ACDP is providing technical support to DIC Wates laboratory under twinning arrangements
Diagnosis, biotechnology and laboratory (true)	Provision of technical support to the National Animal Health and Food Testing Laboratory (NAFTL) in Port Moresby Papua New Guinea in collaboration with the National Agriculture, Quarantine and Inspection Authority (NAQIA) and supported by the Australian High Commission	Using African swine fever as a model, ACDP will build diagnostic capability, particularly in PCR testing, support development of field diagnostics and strengthen disease surveillance. Other priority diseases of livestock have also been a focus.
Diagnosis, biotechnology and laboratory (true)	Lumpy Skin Disease Preparedness in Timor-Leste supported by the Australian Department of Agriculture, Fisheries and Forestry (DAFF)	Provision of LSD ELISA kits and technical support and troubleshooting to the National Animal Health Laboratory in Timor-Leste.
Diagnosis, biotechnology and laboratory (true)	Pacific networked diagnostics (supported by Australian Government Department of Foreign Affairs and Trade)	A project to improve diagnostic capability in the animal health sector in Pacific Island Countries and Territories (PICTs) through practical and sustainable field diagnostics for endemic diseases that can improve animal production and build capacity for surveillance for emerging infectious diseases (EIDs).

TOR3: HARMONISATION OF STANDARDS

2. Proposal or development of any procedure that will facilitate harmonisation of international regulations applicable to the main focus area for which you were designated

Proposal title	Scope/Content	Applicable area
Improved laboratory quality assurance systems	Provide advice and support to laboratories wanting to establish or improve laboratory quality assurance systems such as those provided through ISO 17025:2017 General requirements for the competence of testing and calibration laboratories, ISO9001:2015, ISO 17043:2023 Conformity assessment — General requirements for the competence of proficiency testing providers.	Laboratory expertise

3. In exercising your activities, have you identified any regulatory research needs* relevant for WOAHA?

No

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

Yes

Name of WOAHA CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
BSL4ZNet	Global	Americas Asia and Pacific Europe	BSL4ZNet is a network of government mandated organisations with national level responsibility for protecting animal health by working together to enhance knowledge, competency and capacity to meet current and future high containment

			needs, including for new and emerging diseases.
OFFLU	Global	Africa Americas Asia and Pasific Europe MiddleEast	Coordination of the science underpinning the management and control of influenza in animals
OIE ad hoc Steering Committee of the Regional Framework on Aquatic Animal Health in the Asia Pacific Region.	Asia Pacific	Americas Asia and Pasific Europe	Increasing collaboration in the region on investigation of emerging aquatic diseases, improving tests capability and proficiency testing, with the view to improve overall capability.
5RD Global Biodefense Network	Global	Americas Asia and Pasific Europe	The Five Research and Development (5RD) Global Biodefense Network (GBDN) is a forum for 5RD members to maintain dialogue on various topics regarding biological hazards, emphasizing hazard assessment, characterization, and biosecurity issues for COVID-19 and other emerging diseases.

TOR4 AND 5: NETWORKING AND COLLABORATION

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

Yes

Name of WOAHC CC/RL/other organisation(s)	Location	Region of networking Centre	Purpose
Global African Swine Fever Disease Research Alliance	Global	Africa Americas Asia and Pasific Europe MiddleEast	To establish and sustain global research partnerships that will generate scientific knowledge and tools to contribute to the successful prevention, control and where feasible eradication of ASF
WOAHC Aquatic Animal Health Standards Commission	Global	Africa Americas Asia and Pasific Europe MiddleEast	Collaboration to ensure the Aquatic animal health code and Manual of Diagnostic Tests for Aquatic Animals reflect current scientific information.
Global Foot-and-Mouth Disease Research Alliance	Global	Africa Americas Asia and Pasific Europe MiddleEast	A coordinated global alliance of scientists producing evidence and innovation that enables the progressive control and eradication of FMD.
		Africa	A coordinated global network

EVAg	Global	Americas Asia and Pasific Europe MiddleEast	that mobilises expertise in virology to amplify, characterize, standardize, authenticate, distribute, track, collect viruses and derived products.
VetBioNet	Global	Africa Americas Asia and Pasific Europe MiddleEast	A network of facilities researching animal and zoonotic diseases in secure facilities. The network aims to standardize protocols, identify best practice and develop new technologies.

TOR6: EXPERT CONSULTANTS

6. Did your Collaborating Centre place expert consultants at the disposal of WOA?H?

Yes

NAME OF EXPERT	KIND OF CONSULTANCY	SUBJECT
Dr David Williams	Invited Participant	WOAH Pacific partners meeting
Dr Frank Wong	WOAH Regional Workshop for Avian Disease Prevention and Control in Asia and the Pacific	Disease Diagnostics, Disease Surveillance Updates, and Laboratory Expertise on Avian Diseases
Dr Frank Wong	Chair and contributing expert to the OFFLU Avian Influenza Technical Activity Group	Disease Diagnostics, Disease Surveillance, Guidance Notes, and Laboratory Expertise on Avian Influenza
Dwane O'Brien	Invited Participant	WOAH and INTERPOL Workshop on Interview Techniques

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

7. Did your Collaborating Centre provide advice/services to requests from Members in your main focus area?

Yes

Yes, specific details on the activities delivered and the participants are provided in section 1 and section 8.

8. Did your Collaborating Centre provide scientific and technical training, within the remit of the mandate given by WOA?H, to personnel from WOA?H Members?

Yes

a) Technical visit : 9

b) Seminars : 3

c) Hands-on training courses: 8

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
A	QA training, validation, and verification 14-24 February 2023 9 days	Indonesia	10

C	Biorisk management Leadership intensive at ACDP 27 February - 10 March 2023, 8 days	Indonesia, Cambodia, Vietnam, Malaysia, Singapore, Thailand, Laos, Timor Leste, PNG	17
C	Biosafety Chemical safety training @ DIC Wates 27-31 March 2023 5 days	Indonesia	29
C	Next Generation Sequencing and Bioinformatics Training support for Viromics Surveillance 31 July - 11 August 2023 10 days	Indonesia	5
C	Salmonella training 10-21 July 2023 10 days	Indonesia	3
B	Tissue culture techniques -theory 24 July-4 Aug 4 sessions online, 1 hour each	Indonesia	10
C	Workshop Diagnostic test validation and result interpretation 14-18 August 2023	Latin America	20
A	Histology training in straining techniques all diseases 28 Aug-1 Sept 2023 5 Days	Indonesia	3
A	Laboratory assessment 25 October 2023 1 day	Indonesia	10
A	Laboratory assessments 20 Nov – 30 Nov 2023 10 days	Vietnam	50
A	Quality Assurance Training at ACDP) 18 February – 4 March 2023 2 weeks	Papua New Guinea	1
A	Quality Assurance training and internal laboratory audit in PNG 26 July 2023 – 1 August 2023 7 days	Papua New Guinea	11
B	Tissue culture (TC) refresher training-theory 21 July – 4 August 2023 5 x1hr sessions	Indonesia	8
C	TC refresher training – practical 29 August – 5 September 2023	Indonesia	9
A	Network quality control (NQC) positive control preparation 28 August - 8 September 2023 10 days	Indonesia	13

B	NQC data analysis – in country 29 August – 1 Sept 8 – 12 Sept 7 days	Indonesia	15
C	NQC data analysis & NQC stability testing review – zoom 20 Sept 2023 2, 6, 23 October 2023 20 December 2023 5 x 1.5hr sessions	Indonesia	15
A	Laboratory assessments using FAO LMT in five laboratories in Northern Vietnam, 20-30 November 2023	Vietnam	100
C	Sequencing and Bioinformatics Training, at ACDP, Australia, 20 November – 15 December 2023	Vietnam	1
A	Tissue culture techniques – sample preparation and data analysis 28 August - 22 September 2023 12 days	Indonesia	10

TOR8: SCIENTIFIC MEETINGS

9. Did your Collaborating Centre organise or participate in the organisation of scientific meetings related to your main focus area on behalf of WOA?H

No

TOR9: DATA AND INFORMATION DISSEMINATION

10. Publication and dissemination of any information within the remit of the mandate given by WOA?H that may be useful to Members of WOA?H

a) Articles published in peer-reviewed journals:

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- Edwards KM, Siegers JY, Wei X, Aziz A, Deng Y, Yann S, et al. 2023. Detection of Clade 2.3.4.4b Avian Influenza A(H5N8) Virus in Cambodia 2021. *Emerg. Infect. Dis.* 2023;29(1):170-174. <https://doi.org/10.3201/eid2901.220934>
- Karawita A.C., Cheng Y.Y., Chew K.Y., Challagulla A., Kraus R., et al. 2023. The swan genome and transcriptome, it is not all black and white. *Genome Biol.* 24: 13. <https://doi.org/10.1186/s13059-022-02838-0>
- Layton R., Layton D., Stanger K., Beggs D., Fisher A., Mansell P. 2023. The impact of stress and anaesthesia on animal models of infectious disease. *Frontiers Vet. Sci.* 10:3389 <https://doi.org/10.3389/fvets.2023.1086003>
- Luczo J.M., Soumana I.H., Reagin K.L., Dihle P., Ghedin E., Klonowski K.D., Harvill E.T., Tompkins S.M. 2023. Bordetella bronchiseptica-Mediated Interference Prevents Influenza A Virus Replication in the Murine Nasal Cavity. *Microbiol. Spectrum.* 11: e04735-22. <https://doi.org/10.1128/spectrum.04735-22>
- Reid T, Singanallur Balasubramani N., C. Waugh C., Bowden T, Newberry K., Colling A. Validation of diagnostic tests for infectious diseases: challenges and opportunities. In: *Proceedings of the International Symposium on Sustainable Animal Production and Health: Current Status and the Way Forward.* Vienna, 28 June - 2 July 2021. FAO, Rome. <https://doi.org/10.4060/cc2530en>
- Tribolet L., Brice A.M., Fulford T.S., Layton D.S., Godfrey D.I., Bean A.G.D., Stewart C.R. 2023. Identification of a novel role for the immunomodulator ILRUN in the development of several T cell subsets in mice. *Immunol.* 228(3). doi.org/10.1016/j.imbio.2023.152380
- Caruso S, Edwards SJ. Recently Emerged Novel Henipa-like Viruses: Shining a Spotlight on the Shrew. *Viruses.* 2023 15(12):2407. doi: 10.3390/v15122407.
- Edwards SJ, Rowe B, Reid T, Tachedjian M, Caruso S, Blasdel K, Watanabe S, Bergfeld J, Marsh GA. Henipavirus-induced neuropathogenesis in mice. *Virology.* 2023 587:109856. doi: 10.1016/j.virol.2023.109856.
- Pollak NM, Olsson M, Marsh GA, Macdonald J, McMillan D. Evaluation of three rapid low-resource molecular tests for Nipah virus. *Front Microbiol.* 2023 13:1101914. doi: 10.3389/fmicb.2022.1101914.
- Pollak NM, Marsh GA, Olsson M, McMillan D, Macdonald J. Rapid, sensitive, and specific, low-resource molecular detection of Hendra virus. *One Health.* 2023 16:100504. doi: 10.1016/j.onehlt.2023.100504.
- Watanabe S, Yoshikawa T, Kaku Y, Kurosu T, Fukushi S, Sugimoto S, Nishisaka Y, Fuji H, Marsh G, Maeda K, Ebihara H, Morikawa S, Shimojima M, Saijo M. Construction of a recombinant vaccine expressing Nipah virus glycoprotein using the replicative and highly attenuated vaccinia virus strain LC16m8. *PLoS Negl Trop Dis.* 2023. 17(12):e0011851. doi: 10.1371/journal.pntd.0011851.

b) International conferences:

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- Williams, David. Effect of High Temperature Exposure and Laboratory Processing Techniques on the Diagnostic Performance of Dry Swabs for the Detection of ASFV. GARA Gap Analysis Workshop, Manila, Philippines, December 5-7, 2023. Oral presentation.
- Davis, Samantha. New Insights into Transcriptional Dysregulation Following Infection of Domestic Pigs with Moderately Virulent African Swine Fever Virus. GARA Gap Analysis Workshop, Manila, Philippines, December 5-7, 2023. Oral presentation.
- O'Dwyer, James. Emergence of microvariants of ASFV Genotype II in the Asia-Pacific. GARA Gap Analysis Workshop, Manila, Philippines, December 5-7, 2023. Poster

presentation.

- Williams, David. *Comparative evaluation of qPCR diagnostic tests for the detection of African swine fever virus DNA in oral swabs, swine oral fluids and whole blood.* GARA Gap Analysis Workshop, Manila, Philippines, December 5-7, 2023. Poster presentation.
- Williams, David. *The role of oral fluids and faeces for the laboratory diagnosis of African swine fever.* Conference on ASF in Vietnam: A Comprehensive Approach to Disease Prevention and Management. Ho Chi Minh City, Vietnam, 12th May, 2023. Online presentation.
- Williams, David. *ASF Diagnostic Tools.* ASEAN ASF Workshop. 2-4 May 2023. Quezon City, The Philippines. Online presentation.
- Williams, David. *Point-of-Care Rapid Testing in the Field.* FAO Global Consultations
- Grimsey J, Cooke J, Gagliardi M., Grech E., Wong F., Butler J. Giles M. *Optimisation of antiserum production to highly pathogenic avian influenza viruses at ACDP.* 15th Australian Influenza Symposium. 2-3 November 2023, WHO Collaborating Centre for Reference and Research on Influenza, VIDRL, Melbourne.
- Wong F. *Surveillance of LPAI for risk mitigation and incursion and prevention.* WOAHA Regional Representation for Asia and the Pacific, 29-31 August 2023. Qingdao, People's Republic of China.
- Wong F. *Strategic Challenges 1 Panellist: Avian influenza intelligence - Surveillance and monitoring for early detection.* Animal Health Forum on Avian Influenza, Policy to Action. 90th Annual General Session of the World Assembly of Delegates of the World Organisation for Animal Health (WOAH), 21-25 May 2023, Paris.
- *Validation of diagnostic tests for infectious diseases: challenges and opportunities. International Symposium on Sustainable Animal Production and Health: Current Status and the Way Forward.* T. Reid; N. Singanallur Balasubramani; C. Waugh; T. Bowden; K. Newberry; A. Colling. 2023. Conference Paper

c) National conferences:

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- Williams, David, Wright, Quentin, Islam, Tanjir, Davis, Samantha. *Towards development of a next generation vaccine for African swine fever virus.* Australian Pig Veterinarians' Conference, Sunshine Coast, 16-19 July 2023. Pre-recorded presentation.
- Jia, Fan. *DISC - The Next Generation of African swine fever vaccine.* Victorian Infectious & Immunity Network Young Investigator Symposium. Melbourne, 9th November 2023. Poster.
- Wong F. *Avian Influenza Update. Ideas Exchange Program, 17-18 October 2023.* Poultry Hub Australia, University of New England, Armidale, Australia.
- Wong F. *Global HPAI Update. Recent Advances in Emergency Animal Diseases Annual Symposium, 11-12 October 2023.* CSIRO Australian Centre for Disease Preparedness, Geelong, Australia.

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

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- Australian Centre for Disease Preparedness African swine fever website: <https://www.csiro.au/en/research/animals/veterinary/African-swine-fever>
- ACDP media release: <https://www.csiro.au/en/news/All/Articles/2023/November/African-swine-fever-vaccine>
- Wong F. *Contributions to the OFFLU Steering & Executive Committee Meetings.* Current Chairperson of the OFFLU Executive Committee and OFFLU Avian Influenza Technical Group. <https://www.offlu.org/>
- Wong F. *OFFLU contributions to the WHO Vaccine Composition Meeting consultations on zoonotic influenza, Feb and Sep 2023.* <https://www.offlu.org/index.php/publications/>
- Wong F. *Contributions to FAO Regional Consultation on Environmental Surveillance for Zoonotic Influenza in Asia, 14-16 November 2023.* FAO-RAP, Bangkok.
- Wong F. *Contributions to the FAO Global Consultation on HPAI. Hybrid Meeting, 2-4 May 2023.* FAO Rome. <https://www.fao.org/documents/card/en?details=cc7302en>
- Wong F. *World Health Organization TIPRA Expert Consultation on H5N1 Clade 2.3.4.4b.* 11 May 2023, WHO, Geneva.
- Wong F. *Contributions to the 2nd Workshop of the WOAHA Avian Diseases Network in East Asia, 8 June 2023 (Virtual).* WOAHA-RRAP, Tokyo.
- Colling A., Day A. *ACDP contribution to update of WOAHA Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, twelfth edition 2023. Chapter 1.1.5. Quality Management in Veterinary Testing Laboratories.* <https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-manual-online-access/>
- Newberry K., Colling A., *ACDP contribution to update of WOAHA Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, twelfth edition 2023. Chapter 2.2.4. Measurement Uncertainty.* <https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-manual-online-access/>
- Newberry K., Colling A. *ACDP contribution to WOAHA Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, twelfth edition 2023. Chapter 1.1.9. Tests for sterility and freedom from contamination of biological materials intended for veterinary use.* <https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-manual-online-access/>
- Reising M., Colling, A. *ACDP contribution to update of WOAHA Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, twelfth edition 2023. Chapter 2.2.8. Comparability of assays after changes in a validated test method.* <https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-manual-online-access/>
- Waugh C., Cabuang L. *ACDP contribution to update of WOAHA Manual of Diagnostic Tests and Vaccines for Terrestrial Animals, twelfth edition 2023. Chapter 2.2.6. Use of reference samples and panels.* <https://www.woah.org/en/what-we-do/standards/codes-and-manuals/terrestrial-manual-online-access/>
- *National Animal Health Monitoring Program Annual Report, available at <https://animalhealthaustralia.com.au/>*

11. What have you done in the past year to advance your area of focus, e.g. updated technology?

12. Additional comments regarding your report:

NA