OIE Collaborating Centres Reports Activities

Activities in 2021

This report has been submitted : 2022-01-19 05:22:54

Title of collaborating centre:	Diagnostic Test Validation Science in the Asia-Pacific Region
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Name of Director of Institute (Responsible Official):	Dr Trevor Drew Director
Name (including Title and Position) of Head of the Collaborating Centre (formally OIE Contact Point):	Axel Colling, Principal Research Consultant
Name of writer:	Axel Colling

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

Other (Name the category)	
Title of activity	**Scope**
OIE Collaborating Centre (CC) for Diagnostic Test Validation Science in the Asia Pacific Region.	The CC is an international scientific consortium (AAHL, Uni Melbourne and EpiCentre at Massey University, NZ which combines expertise in diagnostics, epidemiology and modelling. The Centre's mission is to generate new knowledge and techniques that improve the use and interpretation of diagnostic tests used in human and animal health and to promote dissemination of that knowledge to the wider medical and veterinary communities.
Special Issue "Diagnostic Test Validation Science" recently published by the World Animal Health Organisation (OIE Vol. 40 (1), 2021).	The CC has made outstanding contributions (12/23 chapters) to the Special Issue "Diagnostic Test Validation Science" recently published by the World Animal Health Organisation (OIE Vol. 40 (1), 2021). The book provides an up-to-date compilation of the relevant standards and guidance documents for all stages of diagnostic test validation and proficiency testing, including design, analysis, as well as clear, complete, and transparent reporting of validation studies in the peer-reviewed literature. It also includes modern approaches for the development of new technologies such as next-generation sequencing assays and point-of care tests for new and emerging diseases in non-domestic species, which represent pressing challenges as we have seen during the COVID pandemic. In recognition to the Special Issue, the OIE has requested the CC to review 9 validation chapters in the Manual of Diagnostic Tests and Vaccines for Terrestrial Animals.
e-validation workshop as a collaboration between ACDP OIE CC and Parks Singapore, 6-8 July 2021	General principles and methods of diagnostic test validation and related topics such as proficiency testing, verification and comparability studies including case studies. Practical exercises where participants can apply principles and methods using validation software using their own data or data provided in exercises. Example-based introduction to Bayesian Latent Class Analysis.
Development and validation of a biomarker assay for Mycoplasma bovis in cattle. Collaborative research project between H&B, ACDP, MPI and Massey University NZ. In progress.	Validation of new diagnostic technologies.
e-International Symposium on Sustainable Animal Production and Health, IAEA – Current Status and Way Forward 28 June to 2 July 2021.	Conference paper: "Validation of diagnostic tests for infectious diseases: challenges and opportunities." under review.

FAO/IAEA Consultancy Meeting on Development of Tools for the Mining, Monitoring and Tracing of Zoonotic Pathogens in Asia and Pacific, 1 September 2021.	IAEA Zodiac project. Zoonotic pathogens mining IAEA invitation to contribute with a book chapter about “Serological assays and detection of immune responses against pathogens”. In preparation.
Chairing of OIE ad hoc groups to assess validation dossiers for certification and registration of diagnostic kits.	In 2021 6 kits have been reviewed by 3 experts from ACDP. These activities are still ongoing.
Consultancies for OIE member (MPI New Zealand) on the evaluation of ELISAs for Mycoplasma bovis in cattle.	Evaluation of bulk tank milk testing, herd-level cut-off selection for serological assay for surveillance in support of eradication campaign, and simulation modelling in support of demonstration of freedom.
Development of Bayesian latent class modelling methods for complex disease contexts.	Development of Bayesian latent class models for 3 to 6 conditionally dependent tests, in unbalanced testing designs, from hierarchically structured populations, and in settings where the assumptions of constant sensitivity are clearly violated (i.e. bulk tank milk testing at different points in lactation).

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
Review of validation chapter 1.1.6 in OIE Manual	Review validation chapter 1.1.6 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare
Review of validation chapter 2.2.1 Development and optimization of antibody detection assays in OIE Manual.	Review validation chapter 2.2.1 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare
Review of validation chapter 2.2.2 Development and optimization of antigen detection assays in OIE Manual.	Review validation chapter 2.2.2 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare
Review of validation chapter 2.2.3 Development and optimization of nucleic acid detection assays in OIE Manual.	Review validation chapter 2.2.3 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare
Review of validation chapter 2.2.4 Measurement Uncertainty in OIE Manual.	Review validation chapter 2.2.4 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare

Review of validation chapter 2.2.5 Statistical approaches for test validation in OIE Manual.	Review validation chapter 2.2.5 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare
Review of validation chapter 2.2.6 Selection and use of reference samples and panels in OIE Manual.	Review validation chapter 2.2.6 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare
Review of validation chapter 2.2.7 Principles and methods for the validation of diagnostic tests for infectious diseases applicable to wildlife in OIE Manual.	Review validation chapter 2.2.7 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare
Review of validation chapter 2.2.8 Comparability of assays after minor changes in a validated test method in OIE Manual.	Review validation chapter 2.2.8 using information generated in Special Issue "Diagnostic Test Validation Science" 40 (1), 2021	☒Surveillance and control of animal diseases ☐Food safety ☐Animal welfare

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
Faculty of Veterinary and Agricultural Sciences (FVAS) The University of Melbourne Parkville, Victoria 3010, Australia Tel: +61 3 9035 4114 Fax: +61 3 8344 7374 mark.stevenson1@unimelb.edu.au URL:http://fvas.unimelb.edu.au	Melbourne, Australia	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East	Quantitative and spatial epidemiology, modelling of infectious diseases and analysis of complex datasets including the use and development of latent class models to validate diagnostics for a range of endemic pathogens.

EpiCentre, School of Veterinary Science, Massey University Private Bag 11-222 Palmerston North 4412, New Zealand Tel: +64 6 350 5270 Fax: +64 6 355 7955 C.Heuer@massey.ac.nz URL: http://epicentre.massey.ac.nz	Palmerston North, New Zealand	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East	Veterinary epidemiology, statistics and test validation.
Atlantic Veterinary College, University of Prince Edward Island 50 University Ave. Charlottetown, Prince Edward Island, C1A 4P3 iagardner@upei.ca; Mobile: 902-394-6823	Charlottetown, Canada	☐Africa ☒Americas ☐Asia and Pacific ☐Europe ☐Middle East	Test validation science, aquatic epidemiology, collaboration, Bayesian latent class analysis (BLCA) and validation standards.
UC Irvine Department of Statistics Irvine 92697, California, USA 2232 Bren Hall wjohnson@uci.edu	Irvine, California, USA	☐Africa ☒Americas ☐Asia and Pacific ☐Europe ☐Middle East	Test validation science collaboration, BLCA.
School of Animal and Veterinary Sciences The University of Adelaide, Roseworthy Campus, Roseworthy, South Australia, 5371, Australia +61-8-8313 1245 charles.caraguel@adelaide.edu.au	Adelaide, Australia	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East	Aquatic epidemiology, validation, Bayesian Latent Class Analysis.
Prof. Grant Rawlin Research Leader, Veterinary Pathobiology, AVR, Agriculture Victoria Department of Jobs, Precincts and Regions Adjunct Professor in Animal and Veterinary Bioscience, La Trobe University AgriBio, 5 La Trobe University, Ring Road, Bundoora T: 61 3 90327229, M: 0428 581788 grant.rawlin@agriculture.vic.gov.au	Melbourne, Australia	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East	Test validation science collaboration, new technologies.

Prof Dr Gerrit Viljoen (Section Head) Animal Production and Health Section Joint FAO/IAEA Division of Nuclear Techniques in Food and Agriculture Department of Nuclear Sciences and Applications International Atomic Energy Agency Vienna International Centre, PO Box 100, 1400 Vienna, Austria Email: G.J.Viljoen@iaea.org T: (+43-1) 2600-26053 M: (+43) 699-165-26053 F: (+43-1) 26007	Vienna, Austria	☒Africa ☒Americas ☒Asia and Pacific ☒Europe ☒Middle East	Zodiac project, Diagnostic test validation for zoonotic disease pathogens, proficiency testing.
Dr Giovanni Catoli, www.iaea.org, Vienna, Austria, ELISA and Molecular Techniques, Disease Diagnosis FAO/IAEA Animal Production and Health Laboratory	Seibersdorf, Austria	☒Africa ☒Americas ☒Asia and Pacific ☒Europe ☒Middle East	Collaboration and training in diagnostic test validation, proficiency testing, establishing quality systems (ISO 17025).
Dr Charlene Fernandez & Xinyu Toh, National Parks Board Singapore (NParks), Animal and Veterinary Service (AVS), ASEAN Regional Reference Centre for Bio-Risk Management and Quality Assurance (OIE) Kinzang Dupka, Jing Wang, Abila Ronello), (FAO) Filip Claes.	Singapore	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East	Collaboration for test validation workshop Brunei, Cambodia, Indonesia Malaysia, Myanmar, Philippines, Singapore, Thailand.
Dr Stu Hutchings, Chief Biosecurity Officer Biosecurity New Zealand, Tiakitanga Pūtaiao Aotearoa, Ministry for Primary Industries - Manatū Ahu Matua, 11 Nikau Street, Private Bag 12031, Mt Maunganui 3116, New Zealand, Telephone: 022 020 5331 or 027 478 7901, Web: www.mpi.govt.nz.	Mt Maunganui, New Zealand	☐Africa ☐Americas ☒Asia and Pacific ☐Europe ☐Middle East	Membership of a working group for review of diagnostic methodologies for Bonamia ostreae in New Zealand.

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

No

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
Axel Colling	Chair of OIE ad hoc working group for certification of diagnostic kits	Assessmment of validation extension dossier for OIE certification of diagnostic kit for Mycobacterium bovis in milk.

Axel Colling	Chair of OIE ad hoc working group for certification of diagnostic kits.	Assessmment of validation extension dossier for OIE certification of diagnostic kit for MERS after 5 years.
Nagendra Singanallur Balasubramanian	Chair of OIE ad hoc working group for certification of diagnostic kits.	Assessmment of validation dossier for OIE certification of multiplex assays for shrimp diseases.
Nagendra Singanallur Balasubramanian	Chair of OIE ad hoc working group for certification of diagnostic kits.	Assessmment of validation dossier for OIE certification of diagnostic kit of a gamma interferon test for diagnosis of Mycobacterium bovis in cattle.
Nagendra Singanallur Balasubramanian	Chair of OIE ad hoc working group for certification of diagnostic kits.	Assessment of validation dossier for OIE certification of penside tests for FMDV antigen detection.
John Allen	Chair of OIE ad hoc working group for certification of diagnostic kits.	Assessmment of validation dossier for OIE certification of a lateral flow device for WSSV.
Ian Gardner	Chair of OIE ad hoc working group for certification of diagnostic kits.	Assessment of validation dossier for OIE certification of ELISA for Glanders horse serum.
Simon Firestone	External consultancy to applicant (diagnostic test developer) supporting and undertaking Bayesian latent class analyses for development of OIE dossier.	Assessmment of validation dossier for OIE certification of multiplex assays for shrimp diseases.

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: 1
c) Hands-on training courses: 2
d) Internships (>1 month): 2

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)	The regional workshop was jointly conducted by ACDP/CSIRO and NParks/AVS, Singapore for Diagnostic Test Validation & Results Interpretation held on 6-8 July 2021	Brunei, Indonesia, Philippines, Malaysia, Myanmar, Singapore, Thailand.	26

b)	In 2021 CC members from UoM, Massey Uni and UoA have led the development of 19 open access online modules for the APCOVE consortium (Asia Pacific Consortium of Veterinary Epidemiology) on diagnostic tests and fundamental epidemiological principles including outbreak investigation, surveillance, sampling and biostatistics.	Laos, Cambodia, Myanmar, Vietnam, Indonesia, Philippines, Papua New Guinea and Timor-Leste	100
c)	In 2021 CC members from UoM and Massey Uni have co-led a 20 week online training program for MPI New Zealand and funded participants from OIE member countries on diagnostic test evaluation and other fundamental epidemiological principals.	New Zealand, Singaporean Indonesian Vietnamese Philippines, Thailand, UAE	18
d)	In 2021 UoM has supervised two PhD students working specifically on the development and application of Bayesian latent class models to diagnostic test validation in challenging contexts.	USA, Sri Lanka	2

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?

Yes

National/International	Title of event	Co-organiser	Date (mm/yy)	Location	No. Participants
International	1) 3rd OIE Regional Meeting for OIE Reference Centres in Asia and the Pacific, online 24-25 February 2021. Represented OIE Collaborating Centre for Diagnostic Test Validation Science, ACDP. https://rr-asia.oie.int/en/events/the-3rd-oie-regional-meeting-for-oie-reference-centres-in-asia-and-the-pacific.[The OIE office established a link to enable online access of training material and presentations from a workshop "Interpretation and validation of diagnostic tests in veterinary science" 2019 in Melbourne Materials shared by RCs - OIE - Asia. The material was prepared by various members of the OIE collaborating centre for diagnostic test validation science.]	Regional office OIE Japan.	24-25 February 2021	Virtual	100

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: 25

1. BOWDEN TR; CROWTHER JR; WANG J. 2021; Review of critical factors affecting the analytical characteristics of serological and molecular assays. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

2. BROWN H; CASSAR CA; SLOMKA MJ; McELHINNEY LM; BROUWER A. The role of national and international veterinary laboratories. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

3. CARAGUEL CGB; COLLING A. Diagnostic likelihood ratio - the next-generation of diagnostic test accuracy measurement. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

4. CHEUNG A; DUFOUR S; JONES G; KOSTOULAS P; STEVENSON MA; SINGANALLUR NB; FIRESTONE SM. Bayesian latent class analysis when the reference test is imperfect. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

5.Colling A & Gardner IA, 2021 In Diagnostic test validation science: a key element for effective detection and control of infectious animal diseases. Rev. Sci. Tech. Off. Int. Epiz., 40 (1). https://doi.org/10.20506/rst.issue.40.1.3205

6.COLLING A; GARDNER IA. Conclusions - Validation of tests of OIE-listed diseases as fit-for-purpose in a world of evolving diagnostic technologies and pathogens. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

7. CULLINANE AA; GARVEY M.A. Review of diagnostic tests recommended by the World Organization for Animal Health Manual of Diagnostic Tests and Vaccines for Terrestrial Animals. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

8.Eloit, M., Preface

9.Gardner I.A., Colling A., Caraguel C.G., Crowther J.R., Jones G., Firestone S.M. & Heuer C. 2021. – Introduction − Validation of test for OIE-listed diseases as fit-for-purpose in a world of evolving diagnostic technologies and pathogens. In Diagnostic test validation science: a key element for effective detection and control of infectious animal diseases (A. Colling & I.A. Gardner, eds). Rev. Sci. Tech. Off. Int. Epiz., 40 (1), 19–28. doi:10.20506/rst.40.1.3207.

10. GIFFORD G; SZABO M; HIBBARD R; MATEO D; COLLING A; GARDNER I; VINDEL EE. Validation, certification and registration of veterinary diagnostic test kits by the World Organization for Animal Health Secretariat for Registration of Diagnostic Kits. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

11. HALPIN K; TRIBOLET L; HOBBS E; SINGANALLUR NB. Perspectives and challenges in validating new diagnostic technologies. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

12. HEUER C; STEVENSON MA. Diagnostic test validation studies when there is a perfect reference standard. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

13. JOHNSON ; CABUANG L. Proficiency testing and ring trials. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

14. KIRKLAND PD; NEWBERRY KM. Your assay has changed - is it still 'fit for purpose'? What evaluation is required. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

15. P. Kostoulas; I.A. Gardner; M.C. Elschner ; M.J. Denwood; E. Meletis & S.S. Nielsen. Examples of proper reporting for evaluation (Stage 2 validation) of diagnostic tests for diseases listed by the World Organisation for Animal Health. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

16. LUDI AB; MIOULET V; KASSIMI LB; LEFEBVRE DJ; DE CLERCQ K; CHITSUNGO E; NWANKPA N; VOSLOO W; PATON DJ; KING DP. Selection and use of reference panels: a case study highlighting current gaps in the materials available for foot and mouth disease. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

17. MAYO CE; WEYER CT; CARPENTER MJ; REED KJ; RODGERS CP; LOVETT KM; GUTHRIE AJ; MULLENS BA; BARKER CM; REISEN WK; MACLACHLAN NJ. Diagnostic applications of molecular and serological tests for the detection of bluetongue and African horse sickness. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

18. MICHEL AL; VAN HEERDEN H; CROSSLEY BM; AL DAHOUK S; PRASSE D; RUTTEN V. Pathogen detection and disease diagnosis in wildlife: challenges and opportunities. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

19. NEWBERRY KM; COLLING A. Quality standards and guidelines for test validation for infectious diseases in veterinary laboratories. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

20. REISING MM; TONG C; HARRIS B; TOOHEY-KURTH KL; CROSSLEY B; MULROONEY D; TALLMADGE RL; SCHUMANN KR; LOCK AB; LOIACONO CM. A review of guidelines for evaluating a minor modification to a validated assay. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

21. STEVENSON M; HEUER C; HALPIN K. Emerging and endemic zoonotic diseases: surveillance and diagnostics. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

22. WATSON JW; CLARK G; WILLIAMS DT. The value of virtual biobanks for transparency purposes with respect to

reagents and samples used during test development and validation. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

23. WAUGH C; CLARK G. Factors affecting the reproducibility of tests in different laboratories. Rev. Sci. Tech. Off. Int. Epiz., 40 (1).

24. WOOD C; PERKINS N; TOZER S; JOHNSON W; BARNES T; MCGOWAN M; GIBSON J; ALAWNEH J; FIRESTONE S; WOLDEYOHANNES S, 2021. Prevalence and spatial distribution of Coxiella burnetii seropositivity in northern Australian beef cattle adjusted for diagnostic test uncertainty. Prev. Vet. Med., 105282.

25. French N; Jones G; Heuer C; Hope V; Jefferies S; Muellner P; McNeill A; Haslett S; Priest P, 2021. Creating symptom-based criteria for diagnostic testing: a case study based on a multivariate analysis of data collected during the first wave of the COVID-19 pandemic in New Zealand. BMC Infect Dis 21:1119 (https://doi.org/10.1186/s12879-021-06810-4)

b) International conferences: 3
1) 3rd OIE Regional Meeting for OIE Reference Centres in Asia and the Pacific, online 24-25 February 2021. Represented OIE Collaborating Centre for Diagnostic Test Validation Science, ACDP. https://rr-asia.oie.int/en/events/the-3rd-oie-regional-meeting-for-oie-reference-centres-in-asia-and-the-pacific/ [The OIE office established a link to enable online access of training material and presentations from a workshop “Interpretation and validation of diagnostic tests in veterinary science” 2019 in Melbourne Materials shared by RCs - OIE - Asia. The material was prepared by various members of the OIE collaborating centre for diagnostic test validation science.]

2)Virtual IAEA ZODIAC Senior/Expert Animal Health Consultant Meeting (virtual) to discuss and formulate the ZODIAC Coordinated Research Projects 22, 24, 26 February 2021. A book chapter about modern serological tests is in preparation. https://www.iaea.org/services/zodiac

3) FAO/IAEA International Symposium on Sustainable Animal Production and Health – Current Status and Way Forward 28 June to 2 July 2021. This is a joint venture with the Vetlab meeting 2021 (Veterinary Diagnostic Laboratory Network).
Reid et al. Validation of diagnostic tests for infectious diseases: challenges and opportunities. Paper submitted. https://www.iaea.org/events/aphs2021

c) National conferences: 0
No national conferences in 2021

d) Other
(Provide website address or link to appropriate information): 2
1) Weekly meeting of validation team at ACDP (no website)
2) Monthly meeting of Epi Think Tank at Melbourne Veterinary School.
https://shiny.vet.unimelb.edu.au/epi/schedule/index.htm

9. Additional comments regarding your report:

Due to COVID-19, ACDP has continued to work with limited operational capacity throughout 2021 (for example, adopting roster arrangements for staff site access, reduced site access to ensure physical distancing, no international travel and visitors unable to attend site for most of the year). This has significantly limited ACDP’s capacity to carry out planned research and conduct training and has limited some types of diagnostic submissions to the laboratory. In April 2021 the new Special Issue "Diagnostic test validation science: a key element for effective detection and control of infectious animal diseases." was published (Rev. Sci. Tech. Off. Int. Epiz., 40 (1). Over 50% of the chapters were authored by members of the OIE CC. The book provides an up-to-date compilation of the relevant standards and guidance documents for all stages of diagnostic test validation and proficiency testing, including design, analysis, as well as clear, complete, and transparent reporting of validation studies in the peer-reviewed literature. It also includes modern approaches for the development of new technologies such as next-generation sequencing assays and point-of care tests for new and emerging diseases in non-domestic species, which represent pressing challenges as seen during the COVID pandemic (https://doc.oie.int/dyn/portal/index.xhtml?page=alo&aloId=41245). Another highlight was the successful conclusion of an international project for the preliminary validation and comparison of molecular tests for the

diagnosis of Tilapia Lake Virus. This project included an interlaboratory comparison with 7 laboratories in Africa, China, Latin America, Europe and USA.
(https://www.oie.int/app/uploads/2021/11/a-ahg-infection-with-tilapia-lake-sept-2019-sept-2021.pdf)