

WOAH Reference Laboratory Reports Activities 2022

Activities in 2022

This report has been submitted : 25 mars 2023 19:54

Laboratory Information

Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Campylobacteriosis
Address of laboratory:	PO Box 80.165
Tel.:	+31-302534376
E-mail address:	j.wagenaar@uu.nl
Website:	https://www.uu.nl/en/organisation/faculty-of-veterinary-medicine/veterinary-research/one-health/infection-immunity/clinical-infectiology/campylobacter-fetus
Name (including Title) of Head of Laboratory (Responsible Official):	Prof. dr. Jaap A. Wagenaar
Name (including Title and Position) of WOA Reference Expert:	Prof. dr. Jaap A. Wagenaar (Chair of Division Infectious Diseases and Immunology)
Which of the following defines your laboratory? Check all that apply:	Governmental Academic institution

TOR1: DIAGNOSTIC METHODS

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 WOA Manual (Yes/No)	Total number of test performed last year	
Indirect diagnostic tests		Nationally	Internationally
no	no		
Direct diagnostic tests		Nationally	Internationally

culture (primary or isolate)	yes	244	2
nahE real-time PCR (van der Graaf et al., 2013)	yes	183	2
Whole Genome Sequencing (WGS)	yes	29	2
Maldi-Tof	yes	42	2

TOR2: REFERENCE MATERIAL

2. Did your laboratory produce or supply imported standard reference reagents officially recognised by WOA?H?

No

3. Did your laboratory supply standard reference reagents (nonWOAH-approved) and/or other diagnostic reagents to WOA?H Members?

No

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOA?H Members?

Not applicable

TOR3: NEW PROCEDURES

6. Did your laboratory develop new diagnostic methods for the designated pathogen or disease?

No

7. Did your laboratory validate diagnostic methods according to WOA?H Standards for the designated pathogen or disease?

No

8. Did your laboratory develop new vaccines for the designated pathogen or disease?

No

9. Did your laboratory validate vaccines according to WOA?H Standards for the designated pathogen or disease?

No

TOR4: DIAGNOSTIC TESTING FACILITIES

10. Did your laboratory carry out diagnostic testing for other WOA?H Members?

Yes

NAME OF WOA?H MEMBER COUNTRY SEEKING ASSISTANCE	DATE	WHICH DIAGNOSTIC TEST USED	NO. SAMPLES RECEIVED FOR PROVISION OF DIAGNOSTIC SUPPORT	NO. SAMPLES RECEIVED FOR PROVISION OF CONFIRMATORY DIAGNOSES
INDONESIA	2022-03-01	Whole Genome Sequencing		2

11. Did your laboratory provide expert advice in technical consultancies on the request of an WOA?H Member?

Yes

NAME OF THE WOA?H MEMBER COUNTRY RECEIVING A	PURPOSE	HOW THE ADVICE WAS
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TECHNICAL CONSULTANCY		PROVIDED
UNITED KINGDOM	1. Campy real-time PCR and detection of Campylobacter in metagenomics 2. Improving culture conditions for Campylobacter infans isolation 3. Plasmid detection of Campylobacter 4. Evolution of Campylobacter plasmids 5. Study S-layer of Campylobacter fetus	1. Technical visit (from UK to NL and NL to UK), online meetings and e-mail 2. Technical visit (NL to UK) and e-mail. 3. Technical visit (UK to NL), collaboration on WGS data exchange, e-mail contact 4. Meeting at conference (NL to UK), contact per email 5. Technical visit (NL to UK), collaboration, planning to exchange isolates
INDONESIA	Culturing and isolation of Campylobacter fetus	Internship (Indonesia to NL), technical visit (NL to Indonesia), online meetings, e-mail, sending and identification of Indonesian strains in NL
INDONESIA	Isolation and susceptibility testing C. jejuni/coli	Advice during 2 visits of the reference laboratory (animal-food safety)
SPAIN	Antimicrobial resistance of Campylobacter fetus	Contact per e-mail and planning an internship (Spain to NL)
ARGENTINA	Isolation and detection of Campylobacter fetus	Contact per e-mail and planning to exchange DNA/primers/probes
INDIA	Isolation, culturing and identification of Campylobacter fetus	1. NL has sent primers to India 2. We provided support on isolation and culturing by e-mail 3. Planning to ship strains or DNA from India to NL for confirmation purposes
POLAND	Campylobacter fetus isolation and biochemical assays	Technical advice and support per e-mail
AUSTRALIA	Isolation, culturing and storage of Campylobacter fetus isolates	Technical advice and support per e-mail
PAKISTAN	Advice on isolation of Campylobacter isolates	Technical advice and support per e-mail
SWEDEN	Isolation and identification of Campylobacter fetus isolates	Technical advice and support per e-mail
BRAZIL	Vaccin production of Campylobacter fetus	Technical advice and support per e-mail
PORTUGAL	Survival of Campylobacter fetus isolates in transport medium	Technical advice and support per e-mail
LAOS	Advice on isolating C. jejuni/coli from animal samples	Technical advice and support per e-mail
KENYA	Advice on epidemiological aspects of research project on C. jejuni/coli epidemiology/typing	Technical advice during live-meeting

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA Member other than the own?

Yes

Title of the study	Duration	PURPOSE OF THE STUDY	PARTNERS (INSTITUTIONS)	WOAH MEMBER COUNTRIES INVOLVED OTHER THAN YOUR COUNTRY
Campylobacter in the poultry meat production chain	ongoing	Descriptive epidemiology of Campylobacter in the poultry production chain in Sri Lanka	Vet School in Peradeniya	SRI LANKA
Bioinformatics approach and molecular analysis to identify Campylobacter fetus subspecies markers	ongoing	Study the host specificity and virulence of C. fetus subspecies	Universitas Gadjah Mada, Yogyakarta (UGM)	INDONESIA
BB LITVET-UU Collaborative Work For Implementing A New Diagnostic Strategy To Study Campylobacter fetus In Cattle In Indonesia	ongoing	Investigation of a new diagnostic strategy for Campylobacter fetus isolation	INDONESIAN RESEARCH CENTRE FOR VETERINARY SCIENCE (IRCVS), Bogor	INDONESIA
Designing C. jejuni/coli surveillance in the poultry production chain in Indonesia	ongoing	Setting up surveillance for food borne pathogens (including AMR)	Indonesian government (Kesmavet) and BPMSPH (laboratory)	INDONESIA
One Health Genomic and Metagenomic Approaches to Campylobacter and Food Safety	ongoing	Study the role of plasmids in the evolution of Campylobacter spp. and emergence of AMR	Quadram Institute in Norwich	UNITED KINGDOM
One Health Genomic and Metagenomic Approaches to Campylobacter and Food Safety	ongoing	Study the role of plasmids in the evolution of Campylobacter spp. and emergence of AMR	Massey University	NEW ZEALAND
Improvement of C. infans culturing and isolation methods	ongoing	Study the optimal growth conditions of C. infans	Quadram Institute in Norwich	UNITED KINGDOM
Investigation of the Surface layer of Campylobacter fetus isolates	ongoing	Study the composition and genomic infrastructure of the Surface-layer of Campylobacter fetus	The London School of Hygiene & Tropical Medicine	UNITED KINGDOM
Antimicrobial Resistance of Campylobacter fetus	ongoing	Study the antimicrobial resistances of Campylobacter fetus to determine ECOFFs	The European Committee on Antimicrobial Susceptibility Testing	SWEDEN

TOR6: EPIZOOLOGICAL DATA

14. Did your Laboratory collect epidemiological data relevant to international disease control?

No

15. Did your laboratory disseminate epidemiological data that had been processed and analysed?

No

16. What method of dissemination of information is most often used by your laboratory? (Indicate in the appropriate box the number by category and list the details in the box)

a) Articles published in peer-reviewed journals:

3

- *The impacts of biosecurity measures on Campylobacter contamination in broiler houses and slaughterhouses in the Netherlands: a simulation modelling approach.* Andrijana Horvat, Edien Rommens, Catherine DiGennaro, Els van Daalen, Miriam Koene, Pieter A. Luning, Mohammad S. Jalali. *Food Control* Volume 141, November 2022. <https://doi.org/10.1016/j.foodcont.2022.109151>
- *Wind-borne particle matter entering the air-inlet of poultry farms: potential introduction pathway for highly pathogenic avian influenza virus and other pathogens?* Armin Elbers, Jose L. Gonzales, Miriam G.J. Koene, Evelien A. Germeraad, Renate W. Hakze-van der Honing, Marleen Van der Most, Henk Rodenboog, Francisca C. Velkers. *Pathogens* 2022, 11(12), 1534; <https://doi.org/10.3390/pathogens11121534>
- *Accepted for publication in Microbial Genomics: Antimicrobial resistance in Campylobacter fetus: emergence and genomic evolution*

b) International conferences:

2

- 13th International Meeting on Microbial Epidemiological Markers (IMMEM XIII), 14-17 sept 2022, Bath, UK
- 32nd European Congress of Clinical Microbiology & Infectious Diseases, 23-26 April 2022, Lisbon, Portugal

c) National conferences:

1

- Scientific Spring Meeting, 5-6 April 2022, Papendal, the Netherlands

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

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

17. Did your laboratory provide scientific and technical training to laboratory personnel from other WOA H Members?

Yes

a) Technical visit : 4

b) Seminars : 2

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 kingdom	7 (April 2022); 2 (November 2022)

a	Indonesia	15
a	UK	2
b	Indonesia	10
b	Series of countries from Asia, Africa, Europe (15) attending the Fondation Merieux Course in France	25
b	South Africa (Erasmus+ training program on one health)	20
c	UK	1 (June 2022)
d	Indonesia	1

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO 17025		ISO-9001-197379-2016-AQ-NLD-RvA-1-en-US-20210820-20210820101019.pdf
iso 9001:2015		L389 Verklaring EN.pdf

19. Is your quality management system accredited?

Yes

Test for which your laboratory is accredited	Accreditation body
ISO 9001:2015 management system	DNV
ISO/IEC 17025:2017 MIC assays for Campylobacter	The Dutch accreditation Council RvA
ISO/IEC 17025:2017 Isolation and detection of Campylobacter; cutoff, Preston, Bolton, mCCDA, Maldi-Tof	The Dutch accreditation Council RvA

20. Does your laboratory maintain a "biorisk management system" for the pathogen and the disease concerned?

Yes

- All our laboratories have a biosafety level 2 status (BSL-2), and work procedures are all written in Standard Operating Procedures following BSL-2 requirements - The faculty of Veterinary Medicine of Utrecht University and Wageningen Bioveterinary Research have a biosafety department. The biosafety officers support, assist and control biosafety issues of our the labs including the BSL-2 status, licenses, protocols and audits.

TOR9: SCIENTIFIC MEETINGS

21. Did your laboratory organise scientific meetings related to the pathogen in question on behalf of WOA?

No

22. Did your laboratory participate in scientific meetings related to the pathogen in question on behalf of WOA?

No

TOR10: NETWORK WITH WOA REFERENCE LABORATORIES

23. Did your laboratory exchange information with other WOA Reference Laboratories designated for the same pathogen or disease?

Not applicable (only WOA Reference Laboratory designated for the disease)

24. Are you a member of a network of WOA Reference Laboratories designated for the same pathogen?

Not applicable (Only WOA Reference Laboratory designated for the disease)

25. Did you organise or participate in inter-laboratory proficiency tests with WOA Reference Laboratories designated for the same pathogen?

Not applicable (Only WOA Reference Laboratory designated for the disease)

26. Did your laboratory collaborate with other WOA Reference Laboratories for the same disease on scientific research projects for the diagnosis or control of the pathogen of interest?

Not applicable (Only WOA Reference Laboratory designated for the disease)

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOA Reference Laboratories for the same pathogen?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Region(s) of participating WOA Member Countries
Performance for culture	WBVR: organiser UU: participant	3	Europe

TOR12: EXPERT CONSULTANTS

28. Did your laboratory place expert consultants at the disposal of WOA?

Yes

KIND OF CONSULTANCY	Location	SUBJECT (FACULTATIVE)
updating chapters on Campylobacter	local	we receive regular requests for updating. In 2022 we worked on an update of the C. jejuni/coli chapter

29. Additional comments regarding your report:

No

- In addition to ToR7 "Scientific and technical training": Trainings and visits were still hampered by Covid-19 pandemic and regulations.
- In 2022, our lab studied source attribution of C. jejuni and C. coli from both epidemiological and molecular points of view.
- Within NL, we collaborated with other Institutes to improve Campylobacter culturing and identification (Dutch Animal Health Service, Campylobacter fetus subspecies differentiation with Maldi-Tof and machine learning).
- To meet the need of Member States, our lab is developing a new diagnostic PCR for C. fetus identification
- To support Member States, our lab is providing and extending public available whole genome sequencing data of Campylobacter genomes