

WOAH Reference Laboratory Reports Activities 2025

This report has been submitted: 11 mars 2026 05:21

LABORATORY INFORMATION

| | |
|---|---|
| *Name of disease (or topic) for which you are a designated WOAHO Reference Laboratory: | Bovine Genital Campylobacteriosis (BGC) |
| *Address of laboratory: | P.O.Box 80.165, 3508 TD Utrecht, the Netherlands |
| *Tel: | +31-302534376 |
| *E-mail address: | j.wagenaar@uu.nl |
| Website: | https://www.uu.nl/en/organisation/faculty-of-veterinary-medicine/research/infection-immunity-and-pathology/clinical-infectiology |
| *Name (including Title) of Head of Laboratory (Responsible Official): | Prof. Jaap A. Wagenaar |
| *Name (including Title and Position) of WOAHO Reference Expert: | Prof. Jaap A. Wagenaar, chair of the Division of Infectious Diseases and Immunology |
| *Which of the following defines your laboratory? Check all that apply: | 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 WOAHO Manual (Yes/No) | Total number of test performed last year | |
|---|------------------------------------|--|-----------------|
| | | Nationally | Internationally |
| Indirect diagnostic tests | | | |
| Direct diagnostic tests | | | |
| Culture | Yes | 0 | 60 |
| Whole Genome Sequencing (uploads online tool provided by the Ref Lab) | Yes | 2 | 104 |
| malditof | Yes | 0 | 0 |
| nahE PCR | Yes | 0 | 0 |
| Asd PCR (described in the updated edition of the Manual) | Yes | 0 | 0 |

TOR2: REFERENCE MATERIAL

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

No

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

No

4. Did your laboratory produce vaccines?

Not applicable

5. Did your laboratory supply vaccines to WOA Members?

TOR3: NEW PROCEDURES

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

Yes

| Name of the new test or diagnostic method developed | Description and References (Publication, website, etc.) |
|---|---|
| We developed a PCR in 2024 to discriminate between <i>Campylobacter fetus</i> subspecies and in 2025, we developed a SybrGreen assay based on this PCR on request of a WOA member state (Argentina) (not published) | https://doi.org/10.1016/j.mimet.2024.107049 |
| We developed in 2024 a webinterface to analyse genome data for <i>C. fetus</i> subspecies identification and AMR genes in 2024 and relocated it to a faster server in 2025 | https://klif.uu.nl/cfvcatch |

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

No

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

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

TOR4: DIAGNOSTIC TESTING FACILITIES

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

Yes

| Name of WOA 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 |
|---|------------|---|--|--|
| CANADA | 2025-01-01 | uploads in online tool PLEASE NOTICE: there have been 104 uploads and we cannot see what countries and what date. I have chosen Canada as we have to indicate at least one country. There have been many more | 104 | 104 |

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

Yes

| Name of the WOA Member Country receiving a technical consultancy | Purpose | How the advice was provided |
|--|---|--|
| UNITED STATES OF AMERICA | Identification of <i>Campylobacter fetus</i> subsp <i>venerealis</i> with newly developed asd PCR | e-mail |
| CANADA | Isolation, culturing and identification of <i>C. fetus</i> for diagnostics | e-mail |
| ARGENTINA | Isolation, culturing and identification of <i>Campylobacter Fetus</i> and newly developed asd PCR | technical advice and support by email; Laboratorium experiments were performed by RefLab on request of member state to develop sybrGreen assay which will be used in Argentina |
| UNITED KINGDOM | Plasmid detection of <i>Campylobacter</i> . Evolution of <i>Campylobacter</i> plasmids. Studies of S- layer of <i>Campylobacter fetus</i> . | Monthly exchange of Campy expert NL – UK and UK – NL. Contact per email, exchanging expertise and WGS data |
| BRAZIL | Isolation and characterization of <i>Campylobacter</i> spp. | Technical advice and support by email |

Jaap Wagenaar - - NETHERLANDS

| | | |
|-----------|--|--|
| INDONESIA | Isolation, culturing and identification of <i>C. fetus</i> for diagnostics | Technical advice by providing literature, protocols and discussing results during a workshop |
| SRI LANKA | Identification of <i>Campylobacter fetus</i> subspecies | Technical advice and support by email |

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

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

Yes

| Title of the study | Duration | Purpose of the study | Partners (Institutions) | WOAH Member Countries involved other than your country |
|---|----------|---|---|--|
| Improving diagnostics of <i>C. fetus</i> | ongoing | Setting up diagnostic testing, isolation and identification, of <i>Campylobacter fetus</i> | Central Veterinary Institute | SRI LANKA |
| Bioinformatics approach and molecular analysis to identify <i>Campylobacter fetus</i> subspecies markers | ongoing | Study the host specificity and virulence of <i>C. fetus</i> subspecies | Universitas Gadjah Mada, Yogyakarta (UGM) | INDONESIA |
| BB LITVET-UU Collaborative Work For Implementing A New Diagnostic Strategy To Study <i>Campylobacter Fetus</i> In Cattle In Indonesia | ongoing | Investigation of a new diagnostic strategy for <i>Campylobacter fetus</i> isolation | INDONESIAN RESEARCH CENTRE FOR VETERINARY SCIENCE (IRCVS), Bogor and BRIN | INDONESIA |
| <i>Campylobacter fetus</i> diagnostics | ongoing | Setting up diagnostic testing, isolation and identification, of <i>Campylobacter fetus</i> | DIC Wates, Yogyakarta | INDONESIA |
| One Health Genomic and Metagenomic Approaches to <i>Campylobacter</i> and Food Safety | ongoing | Study the role of plasmids in the evolution of <i>Campylobacter</i> spp. and AMR | Quadram Institute Norwich | UNITED KINGDOM |
| Improvement of <i>C. infans</i> culturing and isolation methods | ongoing | studies on the optimal growth conditions of <i>C. infans</i> | Quadram Institute Norwich | UNITED KINGDOM |
| Investigation of the Surface layer of <i>Campylobacter fetus</i> isolates | ongoing | Study the composition and genomic infrastructure of the Surface-layer of <i>Campylobacter fetus</i> | The London School of Hygiene and Tropical Medicine | UNITED KINGDOM |
| Antimicrobial Resistance of <i>C. fetus</i> | ongoing | Study the antimicrobial resistances of <i>Campylobacter fetus</i> to determine ECOFFs | The European Committee on Antimicrobial Susceptibility Testing | SWEDEN |

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

No

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:

1

Dessislava Veltcheva, Julia Moreno-Manjón, Alejandra Dávila-Barclay, Birgitta Duim, Martin C J Maiden, Samuel K Sheppard (2025) Challenging the removal of key bacteria from the updated 2024 WHO Bacterial Priority Pathogen List. Microbial Genomics, Aug;11(8):001475. doi: 10.1099/mgen.0.001475

b) International conferences:

3

IMMEM XIV, Portugal, 2025. Presentation on our research on Campylobacter plasmids (available on YouTube)

CampyUK, Oxford, UK, 2025. poster presentation on Campylobacter plasmids, and oral presentation on AMR prediction in Campylobacter genomes.

Participation in the ESGEM-AMR working group coordinated by the ESCMID Study Group for Epidemiological markers (ESGEM), Ref Lab leading the Campylobacter subgroup.

c) National conferences:

1

Scientific Spring Meeting of the Dutch Society for Microbiology, 1-2 April 2025, 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 Members?

Yes

a) Technical visit : 3

b) Seminars : 0

c) Hands-on training courses: 1

d) Internships (>1 month) 0

| 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 |
|--|---|---|
| C | INDONESIA | 20 |
| A | INDONESIA | 10 |
| A | INDONESIA | 10 |
| A | NEPAL | 5 |

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

| Quality management system adopted | Certificate scan (PDF, JPG, PNG format) | |
|-----------------------------------|---|--|
| ISO 9001:2015 | management system | ISO-9001-197379-2016-AQ-NLD-RvA-3-nl-NL-20240817.pdf |
| ISO/IEC 17025:2017 | certificate | L389 Verklaring EN.pdf |
| ISO/IEC 17025:2017 | annex assays | L389-annex.pdf |

19. Is your quality management system accredited?

Yes

| Test for which your laboratory is accredited | Accreditation body |
|--|-------------------------------------|
| 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 WOAHP?

No

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

No

TOR10: NETWORK WITH WOAHP REFERENCE LABORATORIES

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

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

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

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

25. Did you organise or participate in inter-laboratory proficiency tests with WOAHP Reference Laboratories designated for the same pathogen during the past 2 years?

Yes

| Purpose of the proficiency test: | Role of your Reference Laboratory (organiser/ participant) | No. participating Laboratories | Participating WOAHP Ref. Labs/ organising WOAHP Ref Lab |
|----------------------------------|--|--------------------------------|---|
| Performance for culture | WBVR: organizer; Utrecht University: participant | 3 | Europe |

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

No

TOR11: OTHER INTERLABORATORY PROFICIENCY TESTING

27. Did your laboratory organise or participate in inter-laboratory proficiency tests with laboratories other than WOAHP Reference Laboratories for the same pathogen during the past 2 years?

No

There are no proficiency tests available

TOR12: EXPERT CONSULTANTS

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

Yes

| Kind of consultancy | Location | Subject (facultative) |
|--------------------------------|------------|---|
| Update of the Terrestrial Code | desk based | Advice if proposed revision of Terrestrial Manual may trigger a need to revise Terrestrial Code Chapter |
| Update Chapter Manual on BGC | desk based | regular update and reply to questions after circulation amongst member states |

29. Additional comments regarding your report:

Yes

Like reported in previous years, we are much more moving towards molecular methods that can be performed in the Member State labs. This makes that our laboratory, in contrast with former decades, get hardly submissions of strains. Shipment of strains is extremely expensive and logistically very challenging for organisms like Campylobacter fetus. We developed, evaluated and are continuously updating the PCR methods that can be performed by Member states themselves. Furthermore, as whole genome sequencing (WGS) is increasingly done by member states, we developed a tool on our website that can be used to identify Campylobacter isolates that have

Jaap Wagenaar - - NETHERLANDS

been sequenced. In 2025, this website is used more than 100 times to identify C. fetus WGS data. We cannot identify the countries behind the uploads of data as this is not registered.

Laboratories can contact us for expert advice and technical support instead of sending their strains. In practice this seem to work well.

The work we do for WOAHA is primarily for Bovine Genital Campylobacteriosis (BCG- Campylobacter fetus). Previously we were also covering Campylobacter jejuni/coli (food safety), but this is not any longer included in the scope of WOAHA. Besides the work for our reference tasks for Campylobacter, we are very active in collaboration with WOAHA in the field of AMR (co-chair of the Quadripartite technical group on Integrated Surveillance) and with WOAHA scientific staff in this field.

With the revision of the BGC-chapter for the Manual we proposed the BSC secretariate to develop and send out a questionnaire to the Member States as we did (and published) 20 years ago. The questionnaire can provide us with information if there are specific requests from the Member States. Below the proposal as shared with the BSC secretariate:

"One of the crucial elements in the control of BCG is the differentiation between the two C. fetus subspecies. The expert lab worked over the last decades to collect scientific evidence and developed tools (PCR and WGS) for member states to differentiate these subspecies correctly. It turned out that the traditionally used phenotypic differentiation, did not show reliable results. Consequently, the interpretation of the older studies that used these phenotypic methods should be done with care (read: do not provide reliable information). In this stage, there is no other choice than to fill in the Table based on expert opinion. With the online tool the expert lab hosts, member states can perform a reliable subspecies identification. We noticed that this tool has been used regularly (>100 entries in 2025), but we do not know by what countries. To progress from this point, we propose that the expert lab, in collaboration with the WOAHA, will send out a questionnaire to member states about the methods they are currently using to differentiate the subspecies, and what data is available in the Member states. We have done this before together with WOAHA in 2005 (Global detection and identification of Campylobacter fetus subsp. venerealis - PubMed). Following this approach we expect to be able to provide more supporting information in a next edition of the Manual."