

WOAH Reference Laboratory Reports Activities 2024

This report has been submitted: 3 mars 2025 00:59

LABORATORY INFORMATION

*Name of disease (or topic) for which you are a designated WOA Reference Laboratory:	Antimicrobial resistance
*Address of laboratory:	Animal and Plant Health Agency, New Haw, Addlestone Surrey KT15 3NB Weybridge UNITED KINGDOM
*Tel:	+44-20 8026 2578
*E-mail address:	Christopher.Teale@apha.gov.uk
Website:	http://apha.defra.gov.uk/apha-scientific/index.htm
*Name (including Title) of Head of Laboratory (Responsible Official):	Dr J Stewart, Chief Executive, Animal and Plant Health Agency
*Name (including Title and Position) of WOA Reference Expert:	Dr Christopher Teale MRCVS, Head of Antimicrobial Resistance
*Which of the following defines your laboratory? Check all that apply:	Veterinary Surveillance Governmental Research agency

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 indirect tests are routinely performed.	No	0	0
Direct diagnostic tests		Nationally	Internationally
Disc diffusion susceptibility tests	Yes	7793	0

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Determination of minimum inhibitory concentration	Yes	13850	0
Whole genome sequencing	Yes	104	0

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?

No

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

No

TOR5: COLLABORATIVE SCIENTIFIC AND TECHNICAL STUDIES

12. Did your laboratory participate in international scientific studies in collaboration with WOA?H 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
AMR surveillance at live bird markets in Bangladesh	2 years	Determine prevalence of AMR	Central Disease Investigation Laboratory, Dhaka., Bangladesh	BANGLADESH

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MDR non-typhoidal Salmonella in migratory birds	4 years	Determine prevalence and AMR of non-typhoidal Salmonella in wild birds	Bangladesh Livestock Research Institute	BANGLADESH
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13. In exercising your activities, have you identified any regulatory research needs* relevant for WOA?H?

No

TOR6: EPIZOOLOGICAL DATA

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

Yes

If the answer is yes, please provide details of the data collected:

Collated AMR data was published at <https://www.gov.uk/government/publications/veterinary-antimicrobial-resistance-and-sales-surveillance-2023>

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

Yes

If the answer is yes, please provide details of the data collected:

Prevalence of AMR in zoonotic and commensal bacteria in healthy animals; prevalence of AMR in bacterial veterinary pathogens.

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:

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Kirchner M; Nunez-Garcia J; Duggett N; Gosling RJ; Anjum MF (2024) Use of transcriptomics and genomics to assess the effect of disinfectant exposure on the survival and resistance of *Escherichia coli* O157:H7, a human pathogen. *Frontiers in Microbiology* 15 <https://doi.org/10.3389/fmicb.2024.1477683>

Eric J Threlfall, Roberto La Ragione, Rohini Manuel, Chris Teale, Paul Cook, Bobby Kainth, Henry Nicholls, Kathryn Callaghan. Advisory Committee on the Microbiological Safety of Food recommendations for standardisation of antimicrobial resistance terminology research comment published in *Veterinary Record* November 2024, 415-417 Advisory Committee on the Microbiological Safety of Food recommendations for standardisation of antimicrobial resistance terminology

Sati NM; Card RM; Barco L; Muhammad M; Luka PD; Chisnall T; Fagbamila IO; Cento G; Nnadi NE; Kankya C; Rwego IB; Ikwap K; Mugisha L; Erume J; Mwiine FN (2024) Antimicrobial Resistance and Phylogenetic Relatedness of *Salmonella* Serovars in Indigenous Poultry and Their Drinking Water Sources in North Central Nigeria. *Microorganisms* 12 (8) <https://doi.org/10.3390/microorganisms12081529>

- Read DS; Gweon HS; Bowes MJ; Anjum MF; Crook DW; Chau KK; Shaw LP; Hubbard A; Abuoun M; Tipper HJ; Hoosdally SJ; Bailey MJ; Walker AS; Stoesser N (2024) Dissemination and persistence of antimicrobial resistance (AMR) along the wastewater-river continuum. *Water Research* 264 <https://doi.org/10.1016/j.watres.2024.122204>
- Gütgemann F, Heuvelink A, Müller A, Churin Y, Buter R, Jung A, Feberwee A, Wiegel J, Kumm F, Braun AS, Yue M, Soriano-Vargas E, Swanepoel S, Botteldoorn N, Kirchner M, Kehrenberg C. Recommendation of a standardized broth microdilution method for antimicrobial susceptibility testing of *Avibacterium paragallinarum* and resistance monitoring. *J Clin Microbiol.* 2024 Feb 16:e0101123. <https://doi.org/10.1128/jcm.01011-23>
- Muna F Anjum, Nicholas Duggett, Ewart Sheldon, Meenaxi Sharma, Richard P Smith, Chris J Teale. Genomics to detect transmission of livestock-associated methicillin-resistant *Staphylococcus aureus* from UK pigs in abattoirs during slaughter *Journal of Antimicrobial Chemotherapy*, dkae052, <https://doi.org/10.1093/jac/dkae052>
- Shafiq Rheman, Sabrina Hossain, Md Samun Sarker, Farhana Akter, Laura Khor, Han Ming Gan, Andy Powell, Roderick M. Card, Yaovi Mahuton Gildas Hounmanou, Anders Dalsgaard, Chadag Vishnumurthy Mohan, Zamila Bueaza Bupasha, Mohammed A. Samad, David W. Verner-Jeffreys, Jérôme Delamare-Deboutteville Nanopore sequencing for identification and characterization of Antimicrobial-Resistant *Escherichia coli* and *Salmonella* spp. from tilapia and shrimp sold at wet markets in Dhaka, Bangladesh *Frontiers of Microbiology*, <https://doi.org/10.3389/fmicb.2024.1329620>
- Jennifer Mattock, Marie Anne Chattaway, Hassan Hartman, Timothy J. Dallman, Anthony M. Smith, Karen Keddy, Liljana Petrovska, Emma J. Manners, Sanelisiwe T. Duze, Shannon Smouse, Nomsa Tau, Ruth Timme, Dave J. Baker, Alison E. Mather, John Wain, and Gemma C. Langridge A One Health Perspective on *Salmonella enterica* Serovar Infantis, an Emerging Human Multidrug-Resistant Pathogen *Emerging Infectious Diseases Journal*, Volume 30, Number 4—April 2024 https://wwwnc.cdc.gov/eid/article/30/4/23-1031_article
- Duggett N; Abuoun M; Stubberfield E; Turner O; Randall L; Horton R; Nunez-Garcia J; Gates D; Chanter J; Teale C; Anjum MF (2023) Genomic surveillance of extended-spectrum cephalosporin-resistant *Escherichia coli* isolated from poultry in the UK from 2016 to 2020. *Frontiers in Microbiology* 14 <https://doi.org/10.3389/fmicb.2023.1335173>
- Huong LQ; Chisnall T; Rodgers JD; Cawthraw SA; Card RM (2024) Prevalence, antibiotic resistance, and genomic characterisation of *Campylobacter* spp. in retail chicken in Hanoi, Vietnam. *Microbial Genomics* 10 (1) <https://doi.org/10.1099/mgen.0.001190>
- Stubberfield E; Abuoun M; Card RM; Welchman D; Anjum MF (2024) Molecular characterization of antimicrobial resistance in *Brachyspira* species isolated from UK chickens: Identification of novel variants of pleuromutilin and beta-lactam resistance genes. *Veterinary Microbiology* 290 <https://doi.org/10.1016/j.vetmic.2024.109992>
- Olorunleke SO; Kirchner M; Duggett N; Stevens K; Chah KF; Nwanta JA; Brunton LA; Anjum MF (2024) Rapid detection and molecular epidemiology of β -lactamase producing *Enterobacteriaceae* isolated from food animals and in-contact humans in Nigeria. *PLoS ONE* 19 (4 April) <https://doi.org/10.1371/journal.pone.0289190>
- Gand M; Navickaite I; Bartsch LJ; Grütze J; Overballe-Petersen S; Rasmussen A; Otani S; Michelacci V; Matamoros BR; González-Zorn B; Brouwer MSM; Di Marcantonio L; Bloemen B; Vanneste K; Roosens NHCJ; Abuoun M; De Keersmaecker SCJ (2024) Towards facilitated interpretation of shotgun metagenomics long-read sequencing data analyzed with KMA for the detection of bacterial pathogens and their antimicrobial resistance genes. *Frontiers in Microbiology* 15 <https://doi.org/10.3389/fmicb.2024.1336532>
- Davies TJ; Swann J; Sheppard AE; Pickford H; Lipworth S; Abuoun M; Ellington MJ; Fowler PW; Hopkins S; Hopkins KL; Crook DW; Peto TEA; Anjum MF; Walker AS; Stoesser N (2023) Discordance between different bioinformatic methods for identifying resistance genes from short read genomic data, with a focus on *Escherichia coli* *Microbial Genomics* 9 (12) <https://doi.org/10.1099/mgen.0.001151>

Deza-Cruz I; Vilar MJ; Velasova M; Abuoun M; Anjum MF; Smith RP (2023) Antimicrobial resistance of *Escherichia coli* in the UK: comparison of single vs. pooled samples from healthy pigs. *Letters in Applied Microbiology* 76 (11)
<https://doi.org/10.1093/lambio/ovad123>

b) International conferences:

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Attended the second annual congress of FAO designated Reference Centres for AMR in Rome (19-20 September 2024).
Attended the 8th World One Health Congress (WOHC) in Cape Town, South Africa (20 to 23 September 2024).

c) National conferences:

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Attended the launch meeting for the AMR in Agrifood Systems Transdisciplinary (AMAST) Network.
Wellcome Sanger conference 'Antimicrobial Resistance – Genomes, Big Data and Emerging Technologies', Cambridge, UK.

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

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APHA Science Blogs for World AMR Awareness Week, themed on "Combatting antimicrobial resistance through global training", "Filling gaps in our understanding of antimicrobial resistance to safeguard animal and human health" and "A visit of a lifetime: Our experience with APHA's UK FAO Reference Centre for AMR"
<https://aphascience.blog.gov.uk/category/amr/>

TOR7: SCIENTIFIC AND TECHNICAL TRAINING

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

No

TOR8: QUALITY ASSURANCE

18. Does your laboratory have a Quality Management System?

Yes

Quality management system adopted	Certificate scan (PDF, JPG, PNG format)	
ISO17025	PDF	17025 certificate.pdf

19. Is your quality management system accredited?

Yes

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Test for which your laboratory is accredited	Accreditation body
Disc diffusion test	UKAS

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

Yes

Advisory Committee on Dangerous Pathogens

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. Do you network (collaborate or share information) with other 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 during the past 2 years?

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

Not applicable.

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 during the past 2 years?

Yes

Purpose for inter-laboratory test comparisons ¹	Role of your reference laboratory (organizer/participant)	No. participating laboratories	Name of the test	WOA Member Countries
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External Quality Assurance of AMR testing in Salmonella, Campylobacter, Enterococci and E. coli

Organiser

14

Broth Dilution MIC

TOR12: EXPERT CONSULTANTS

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

Yes

Kind of consultancy	Location	Subject (facultative)
Electronic Expert Group on AMR	Virtual Meetings	AMR.

29. Additional comments regarding your report:

No