



Food and Agriculture
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Organization

Joint FAO/WHO Expert Meeting on the pre- and post-harvest control of *Campylobacter* spp. in poultry meat

FAO HQ, Rome, Italy: 6 - 10 February 2023

Experts participating in the meeting

Published in January 2023

Background information

Salmonellosis and campylobacteriosis are among the most frequently reported foodborne diseases worldwide. In response to the requests from Codex for scientific advice, FAO and WHO have undertaken the risk assessment of these foodborne pathogens on several foods since 1999¹. In the past, the Joint FAO/WHO Expert Meeting on Microbiological Risk Assessment (JEMRA) has evaluated *Salmonella* spp. in eggs and broiler chickens^{2, 3}, powder infant formula⁴, chicken meat⁵, bivalve molluscs⁶, and beef and pork⁷ to inform risk assessments and recommend effective interventions for the control of this foodborne pathogen. For *Campylobacter* spp., JEMRA has conducted risk assessments in broiler chickens^{8, 9} and evaluated intervention measures being used in production of chicken meat⁵.

In its report on the global burden of foodborne disease, WHO estimated that in 2010 foodborne non-typhoidal *S. enterica* caused more than 78 million illnesses, 59 153 deaths, and nearly 4 068 000

¹ Report of CCFH32: http://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FMeetings%252FCX-712-32%252FAI01_13e.pdf

² MRA1: <https://www.fao.org/3/y4393e/y4393e.pdf> and <https://www.who.int/publications/i/item/9291562307>

³ MRA2: <https://www.fao.org/3/y4392e/y4392e.pdf> and <https://www.who.int/publications/i/item/9291562293>

⁴ MRA10: <https://www.fao.org/3/a0707e/a0707e.pdf> and <https://www.who.int/publications/i/item/9241563311>

⁵ MRA19: <https://www.fao.org/3/i1133e/i1133e.pdf> and <https://www.who.int/publications/i/item/9789241547901>

⁶ In press

⁷ MRA30: <https://www.fao.org/3/i5317e/i5317e.pdf> and <https://www.who.int/publications/i/item/9789241565240>

⁸ MRA11: <https://www.fao.org/3/a1468e/a1468e.pdf> and <https://www.who.int/publications/i/item/9789241547352>

⁹ MRA12: <https://www.fao.org/3/a1469e/a1469e.pdf> and <https://www.who.int/publications/i/item/9789241547369>

Disability Adjusted Life Years (DALYs); foodborne *Campylobacter* spp. caused more than 95 million illnesses, 21 374 deaths, and nearly 2 142 000 DALYs¹⁰. While numerous potential vehicles of transmission exist, commercial poultry meat has been identified as one of the most important food vehicles for non-typhoidal *Salmonella* spp. and *Campylobacter* spp.

At its 52nd session in 2022¹¹, the Codex Committee on Food Hygiene (CCFH) requested JEMRA to collate the relevant scientific information on *Salmonella* and *Campylobacter* in chicken meat in preparation for a potential update of the existing Guidelines for the Control of *Campylobacter* and *Salmonella* in Chicken Meat (CXG 78-2011)¹².

To meet the request of the CCFH, FAO and WHO will convene an expert meeting on the pre- and post-harvest control of *Campylobacter* spp. in poultry meat from 6 - 10 February 2023 in Rome, Italy. A separate expert meeting on the pre- and post-harvest control of non-typhoidal *Salmonella* spp. was held from 12 - 16 September 2022.

The purpose of the meeting is to collect, review and discuss relevant measures for controls of *Campylobacter* spp. from primary production to consumption of poultry meat. The scope of the meetings shall include, but will not be limited to, aspects of primary production, processing, distribution, handling, preparation, retail and consumption of poultry meat. Emphasis will be placed on the identification and evaluation of solutions to reduce campylobacteriosis associated with consumption of poultry meat, taking into consideration their effectiveness and practicalities.

The objectives of the meetings will include:

- To review publicly available literatures and guidelines from competent authorities and industry associations (e.g. compliance guidelines, code of practices, etc.) to assess the current state of the knowledge in controlling *Campylobacter* spp. in poultry meat.
- To review mitigation/intervention measures being used at different points along the food chain and assess their effectiveness at reducing *Campylobacter* spp. in poultry meat.

List of experts

The following list of experts is proposed for this meeting. Please find below their bio-sketches. If you have any comments, please contact us at jemra@fao.org and jemra@who.int no later than **3 February 2023**.

¹⁰ Report on the global burden of foodborne disease:

https://apps.who.int/iris/bitstream/handle/10665/199350/9789241565165_eng.pdf?sequence=1

¹¹ Report of CCFH52: [https://www.fao.org/fao-who-codexalimentarius/sh-](https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FMeetings%252FCX-712-52%252FReport%252FREP22_FHe.pdf)

[proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FMeetings%252FCX-712-52%252FReport%252FREP22_FHe.pdf](https://www.fao.org/fao-who-codexalimentarius/sh-proxy/en/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FMeetings%252FCX-712-52%252FReport%252FREP22_FHe.pdf)

¹² CXG 78: [https://www.fao.org/fao-who-codexalimentarius/sh-](https://www.fao.org/fao-who-codexalimentarius/sh-proxy/de/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B78-2011%252FCXG_078e.pdf)

[proxy/de/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B78-2011%252FCXG_078e.pdf](https://www.fao.org/fao-who-codexalimentarius/sh-proxy/de/?lnk=1&url=https%253A%252F%252Fworkspace.fao.org%252Fsites%252Fcodex%252FStandards%252FCXG%2B78-2011%252FCXG_078e.pdf)

Marianne Chemaly

Dr Marianne Chemaly, PhD, HDR in Food Microbiology, is heading the Unit Hygiene and Quality of Poultry and Pork Products (HQPAP) in ANSES and leading scientific projects related to poultry production. Her research activities focus on the “control of *Salmonella* and *Campylobacter* in poultry production using a multifactorial approach” and cover the global chain from farms to forks. The main topics deal with the prevalence and molecular epidemiology, host-pathogen interactions and control measures. She took part in several EU projects and coordinated workpackages under the FP6, FP7, Emida Era-Net programs and H2020. She is the chair of the International Symposium of *Salmonella* and Salmonellosis (IS3) since its last edition in June 2022. She is member of the board “Quality of food, veterinary public health and plant health” of the Ministry of Agriculture for the recognition and appraisal of Ministry’s experts. She is actively involved in expertise through participation in different working groups as expert on *Salmonella* and *Campylobacter* at the national (ANSES), EU (EFSA) and international (FAO/WHO) levels. M. Chemaly is currently member of the “Biohaz” expert panel within EFSA.

Frances Colles

Dr Frances Colles is a medical microbiologist with a PhD from Oxford University investigating the epidemiology of *Campylobacter* amongst free-range chickens. She began her career working for the UK Department for the Environment, Food and Rural Affairs, the UK Health Security Agency and National Health Service in veterinary and clinical diagnostic laboratories, before moving to research. She has worked with *Campylobacter* for more than 20 years, using molecular and genomic techniques to trace the epidemiology of the organism from farm to fork. She helped to establish the *Campylobacter* Multi-Locus Sequence Typing (MLST) scheme and are a long-term curator of the *Campylobacter* PubMLST database (<https://pubmlst.org>) which stores sequence typing and isolate metadata for the community. She recently developed a culture-independent method specific for *Campylobacter*, showing that *Campylobacter* DNA can be detected amongst young commercial chicks weeks before the organism is evident by culture. She is interested in the impact of host gut health/microbiome, management and animal welfare as a means to reduce the number of human *Campylobacter* infections and lesson the need for antibiotic intervention on farms more generally.

Alessandra De Cesare

Dr Alessandra De Cesare is Associate Professor in Food Inspection and Safety of Foods of Animal Origin at the Department of Veterinary Medical Sciences of the University of Bologna, Italy. She graduated in Molecular Biology and got a PhD in Food Science. She teaches three courses on food safety in Veterinary Medicine, Food Science and Technology, Food Animal Metabolism and Management in the Circular Economy degree programs. She is coordinator of the UNA Europa project NEXTVET and has been involved in European projects addressing: metagenomic sequencing of food, animal and environmental matrixes (H2020 projects CIRCLES 818290, VEO 874735 and COMPARE 643476); implementation of innovative teaching strategies for the next generation of professionals in the agrifood systems (H2020 project NextFood 771738); categorization of ingredient combinations and preparation procedures improving safety of artisanal (PRIMA project ArtisanFood) and RTE foods (FP7 project STARTEC 289262); and definition of fit for purpose sampling schemes for specific food/risk combinations (FP7 project BASELINE 222738). She has authored more than 100 peer reviewed papers (Scopus ID 56188134400) and is currently an external expert in the EFSA BIOHAZ panel. She published numerous papers related to *Campylobacter*, including papers estimating performance objectives for *Campylobacter* in poultry meat.

Moses Gathura Gichia

Dr Moses Gathura Gichia is a food safety expert, consultant and educator in food safety, food microbiology and food safety management systems. Committed to sound science-based solutions on food safety matters.

Dr Gichia is a former Deputy Director of Veterinary Services, retired in 2017 after serving more than 30 years in Kenya's Ministry of Agriculture and Livestock Development. He is a past Chair/Coordinator-FAO/WHO Codex Coordinating Committee for Africa and former Member Representing Africa in the FAO/WHO Codex Executive Committee. Dr Gichia serves as a member of the Joint FAO/WHO Expert Meetings on Microbiological Risk Assessment (JEMRA) where he has participated in development of various FAO/WHO food safety documents such as Interventions for the Control of non-typhoidal *Salmonella* spp. in beef and pork.

Other fields that he has undertaken include microbiological criteria related to foods and he participated to the ad-hoc working group that formulated World Organisation for Animal Health (WOAH) Terrestrial Animal Health Code on Prevention and Control of *Salmonella* in Commercial Bovine Production Systems. In Kenya, he is a pioneer member of teams working on antimicrobial resistance.

Dr Gichia has participated in numerous international meetings on food safety.

Ihab Habib

Dr Ihab Habib is working as an Associate Professor in Epidemiology, Food Safety and Veterinary Public Health at the College of Agriculture and Veterinary Medicine of the United Arab Emirates University (UAEU). Dr Habib has been leading the Veterinary Public Health Research Laboratory since joining the UAEU in 2019. Between 2015 and 2019, Dr Habib served as Lecturer and then Senior Lecturer in Veterinary Public Health and Epidemiology at Murdoch University in Australia. The central theme of his research focuses on One Health, antimicrobial resistance, foodborne pathogens (e.g. *Campylobacter* and *Salmonella*), epidemiology, and risk assessment across the human-food interface. He graduated from Alexandria University (Egypt) in the year 2000. His postgraduate studies included; an MSc in Food Safety from Birmingham University (UK); a Master in Public Health from Alexandria University (Egypt); an MSc in Epidemiological Data Analysis from the Institute of Tropical Medicine (Belgium); and a Ph.D. from Ghent University (Belgium) in 2010. He served in various academic and research roles across Europe, Australia, and the Middle East.

Nicol Janecko

Dr Nicol Janecko is a career-track group leader at the Quadram Institute Bioscience, Norwich, UK with a research focus on *Campylobacter* transmission along the food continuum and targeted direct sequencing approaches to characterise low abundance foodborne pathogens in humans, animals, food and the environment. She investigates the epidemiology, transmission, and population diversity of *Campylobacter* in the UK and internationally. Her contribution to capacity building of laboratory testing in resource limited regions has provided knowledge exchange to improve regional capabilities in testing and reporting of infectious intestinal diseases (IIDs), such as *Campylobacter*.

Her expertise in IIDs spans public health, microbiological and molecular laboratory methodologies, and academic research with scientific outputs that include over 60 peer reviewed publications. In her previous role, she delivered scientific outputs and had responsibilities for the operations and strategic direction of retail component of: Foodnet Canada (source attribution surveillance system) and the Canadian Integrated Program for Antimicrobial Resistance Surveillance (surveillance system reporting AMR trends in four key sections along the food continuum). As a current member of the Advisory Committee for Microbiological Safety of Food, Food Standards Agency she

continues to provide her expertise and advises on microbiological safety of foods affecting public health policy.

Catherine Logue

Dr Catherine Logue received her undergraduate degree from the National University of Ireland, her post graduate degree from the Institute of Food Science and Technology, United Kingdom and her PhD from the University of Ulster, United Kingdom, specializing in meat microbiology.

She has worked as a researcher and scientist for state and government agencies. In 1999 she moved to the US as a faculty member at North Dakota State University until 2011, rising to full professor. She was a founding member of the Great Plains Institute of Food Safety. From 2011-2017 she was a Professor of Microbiology in the Department of Veterinary Microbiology and Preventive Medicine, CVM, Iowa State University, and served as the college's Director for Faculty and Staff Advancement and Equity. Currently, she is a Professor of Microbiology in the Department of Population Health, CVM at the University of Georgia, and serves as the Assistant Dean for Faculty Affairs.

Dr Logue specializes in the detection and characterization of pathogens from food animal sources and their antimicrobial resistance. She has extensive research programs in pathogens of human and animal health; she has published more than 120 research articles, book chapters and reviews, and has received in excess of 6 million dollars in federal, state and commodity funds for her research program.

Marcos Sanchez-Plata

Dr Marcos Sanchez-Plata, Associate Professor in Global Food Security with the International Center for Food Industry Excellence (ICFIE) and the Department of Animal and Food Sciences at Texas Tech University, Lubbock, US. His research focuses in microbial biomapping and in-plant validation of antimicrobial interventions and their effects on pathogen control, biofilm development, quality and product shelf-life in different food matrices (meat and poultry, dairy, produce and novel foods) conducting in-plant studies and measuring microbial indicators, pathogen surrogates and pathogen loads to support risk-based decision making, including statistical process control parameters, cross-contamination sourcing, pre- and post-harvest food safety management programs for public health protection and regulatory compliance. He teaches Global Food Security, Food Safety, Poultry Processing and Products and Food Microbiology courses at TTU. He has served previously as Adjunct Professor at the University of Nebraska-Lincoln (UNL) in the Department of Food Science and Technology (FST), Food Safety Specialist for the Inter-American Institute for Cooperation on Agriculture (IICA), and Assistant Professor in Poultry Science and Food Sciences at Texas A&M University. He has a PhD and a MS in FST, and an MBA from UNL, and a BS in Pharmaceutical Biochemistry, Emphasis in Food Biochemistry from the Central University of Ecuador.

Elina Tast-Lahti

Dr Elina Tast-Lahti is a veterinary microbiologist and epidemiologist at the Department of Disease Control and Epidemiology at National Veterinary Institute of Uppsala, Sweden and at the European Union Reference Laboratory for *Campylobacter*.

In 1993, she graduated from the College of Veterinary Medicine in Helsinki, Finland. In 2003 she defended her PhD thesis entitled "Cattle and reindeer as possible sources of *Escherichia coli* O157 infection in humans" at the University of Helsinki.

She has been working on surveillance, detection, and research of zoonotic diseases and zoonotic agents, predominantly for *Salmonella* and *Campylobacter*. Also, she has participated in national and multi-country research and development projects on One Health surveillance and risk communication, and several national food-borne and zoonotic outbreak investigations and in some multi-country outbreak investigations. Since 2007, she has been responsible for the Swedish reporting of zoonoses and the Swedish representative of the Scientific Network on Zoonoses data

collection of the European Food Safety Authority (EFSA). During these years she has participated in some EFSA and Commission working groups. She is the corresponding author or co-author of 20 peer-reviewed scientific publications and contributed to 68 other publications, all these predominantly on zoonoses.

Jaap Wagenaar

Dr Jaap Wagenaar was trained as veterinarian and completed his PhD study at Utrecht University and the USDA-National Animal Diseases Center, Ames, IA, US. He worked at the reference institute of the Dutch Ministry of Agriculture in Lelystad, with WHO (Geneva, Switzerland), CDC (Atlanta, US) and USDA (Albany, Ca, US). In 2006 he was appointed as chair in Clinical Infectious Diseases at the Faculty of Veterinary Medicine, Utrecht University, the Netherlands. The main topics of his research are on antimicrobial resistance and on *Campylobacter*. He was member of the scientific panel of the Netherlands Veterinary Medicines Institute and involved in the major reduction of antimicrobial use in livestock. He is member of the Technical Advisory Group of the Fleming Fund, an UK-initiative to build global capacity on AMR surveillance. He is director of the WHO Collaborating Center for *Campylobacter* and Antimicrobial Resistance from a One Health perspective, and the WOA reference laboratory for Campylobacteriosis, and is acting frequently as expert for WHO, FAO and WOA.

Bing Wang

Dr Bing Wang is a human health risk analyst specialized in addressing microbial food safety issues. Dr Wang's research aims to improve public health decision making through data analysis and decision tools, particularly the use of epidemiology, systematic review, meta-analysis, predictive microbiology, and quantitative microbial risk assessment to optimize the food production and processing conditions and enhance the effectiveness of food safety and quality resources. Currently, Dr Wang is an associate professor at the University of Nebraska-Lincoln. In addition, she serves as an expert advisor to the Joint FAO/WHO Expert Meetings on Microbial Risk Assessment (JEMRA) and food safety consultant for FAO and is appointed as the member on the National Advisory Committee on Microbiological Criteria for Foods of the United States (NACMCF).

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