

**NETWORK ON MICROBIOLOGICAL RISK ASSESSMENT
(MRA)
25th meeting**



8-9 October 2024

14:00-18:00 / 09:00-13:00 (CET)

Minutes agreed on 24 October 2024

Location: EFSA - Parma (Room 00/M09) and Online (Teams platform)

Attendees:

- Network Participants:

Country	Organisation
Austria	Austrian Agency for Health and Food Safety
Belgium	Federal Public Service Health, Food Chain and Environment
Belgium	SPF Health, Food Chain Safety and Environment
Bulgaria	The Stephan Angeloff Institute of Microbiology
Croatia	Croatian Agency for Agriculture and Food
Cyprus	State General Laboratory
Czech Republic	National Institute of Public Health
Czech Republic	State Veterinary Administration of the Czech Republic
Denmark	National Food Institute
Estonia	Estonian University of Life Sciences
Finland	Finnish Food Authority
France	French Agency for Food, Environmental and Occupational Health & Safety (ANSES)
Germany	German Federal Institute for Risk Assessment (BfR)
Greece	Hellenic Food Authority (EFET)
Greece	Ministry of Rural Development and Food
Hungary	National Food Chain Safety Office
Ireland	Food Safety Authority of Ireland
Italy	Istituto Superiore di Sanità (ISS)
Italy	Istituto Zooprofilattico Sperimentale di Abruzzo e Molise "G. Caporale"
Latvia	Institute of Food Safety, Animal Health and Environment "BIOR"
Lithuania	National Food and Veterinary Risk Assessment Institute
Malta	Ministry for Agriculture, Fisheries and Animal Rights
Netherlands	Netherlands Food and Consumer Product Safety Authority (NVWA)
Norway	Norwegian Scientific Committee for Food Safety
Poland	National Institute of Public Health NIH- National Research Institute
Portugal	Autoridade de Seguranca Alimentar e Economica



Slovak Republic	Food Safety Authority- Ministry of Agriculture and Rural Development
Slovenia	MAFF: Administration for Food Safety, Veterinary Sector and Plant Protection
Slovenia	National Institute of Public Health
Spain	University of Cordoba
Sweden	Swedish Food Agency
Switzerland	Federal Food Safety and Veterinary Office FSVO

- Observers:
Bosnia and Herzegovina (Food Safety Agency of Bosnia and Herzegovina), Montenegro (Diagnostic Veterinary Laboratory) and Turkey (Ministry of Agriculture and Forestry)
- Hearing experts:
 - Ellen Lambrecht (Belgian Research Institute for Agriculture, Fisheries and Food – ILVO)
 - Gert Zimmer (Swiss Institute of Virology and Immunology – IVI)
- EFSA: Angela Botteon, Maria Teresa Da Silva Felicio, Beatriz Guerra, Michaela Hempen, Ernesto Liebana, Winy Messens, Pietro Stella, Frank Verdonck (BIOHAW Unit)

1. Welcome and apologies for absence

The Chair welcomed the participants from 25 Member States and Norway and Switzerland as well as observers from Bosnia and Herzegovina, Montenegro and Turkey. No apologies were received.

2. Adoption of agenda

The agenda was adopted without changes.

3. Agreement of the minutes of the 24th Network meeting of the MRA Network held on 23 May 2024, online

The minutes of the 24th Network meeting had been previously agreed by written procedure on 10 June 2024 and published on the EFSA website on 17 June 2024.¹

4. Dynamics of hepatitis E virus (HEV) in pigs, methods for detection of infectious HEV in pork products and optimization of meat processing practices to reduce infectivity

¹ [24th MRA Network meeting \(europa.eu\)](https://eurl-efsa.europa.eu/mra-network-meeting-2024)



Ellen Lambrecht (ILVO) gave an overview of recent Belgian hepatitis E virus (HEV) research. This includes risk factors and dynamics of HEV in Belgian farms based on serological and virological assays, novel developed methods to detect/predict infectious HEV along the food chain, a small survey on HEV in salami, paté and dried ham from Belgian supermarkets and the effect of meat processing (i.e. heating, pH and drying) on HEV infectivity.

5. Impact of pH and temperature on the infectivity of avian influenza viruses in raw milk

Gert Zimmer (IVI) presented a series of experiments, implemented in collaboration with Agroscope, to study the impact of low pH, thermal inactivation, and lactic acid fermentation on the infectivity of avian influenza (AI) virus. First preliminary data suggest that avian influenza viruses were gradually inactivated when lowering the pH stepwise from 6.0 to 4.0. At pH 4.0 and below, AI was completely inactivated. AI were found to be stable at temperature of 45°C (for at least 5 hours) but infectious titer was reduced by 10-fold when incubated for 30 minutes at 50°C. At higher temperatures (55°C and 60°C) AI was more rapidly inactivated. The production of yoghurt, soft-cheese and semi-hard cheese using raw milk reduced infectious titers 100-fold but did not completely inactivate the virus. Tests on other soft and semi-hard cheeses are expected. Consolidated findings will be made available by the end of the year.

6. *Echinococcus multilocularis* risk assessment (NO)

The assessment is revisiting the conclusions of the previous report from 2012, an update of the knowledge available since 2012 and re-assessment of the situation. Novel approaches to assessment of spreading are investigated using ecological models borrowed from the panel for biodiversity. Preliminary findings indicate that environmental eradication is possible by removing infection in local foxes within 1-5 years after introduction using deworming strategies. However, that is difficult to sustain over long periods due to environmental persistence of propagules. In dog population the mandatory treatment when crossing borders could control introduction.

7. Opinion on consumption of bushmeat: assessment of microbiological (and chemical) risks (NL)

The risks of illegally imported bushmeat to the health of consumers in The Netherlands have been assessed. Depending on the state of bushmeat, risks to Dutch consumers are estimated to be small to very small. The likelihood of human infections via consumption of smoked or dried bushmeat from pathogens already present in living animals is probably negligible. Likelihood of infection with heat resistant spores *B. anthracis* is probably small to very small. Cross-contamination with foodborne pathogens cannot be excluded. Fresh bushmeat is seized occasionally. The assessment is hampered by uncertainties.

8. Risk assessment of the food supply chain of red meat and game (NL)



The second risk assessment of red meat and big game supply chain in the Netherlands was presented. It considered the living animal to professional kitchen for the animal species held for meat production and/or consumed in the Netherlands, i.e. cattle, swine, goat, sheep, horse, deer, boar. For public health, antimicrobial resistance and food safety through the alimentary route (i.e. intake, no contact/inhalation) are considered. Beef is the main source of exposure to foodborne pathogens on population level, but consumption of meat of small ruminants seems to be as risky (on consumption per portion). A RA of a supply chain also aims to identify weak or blind spots in the surveillance system (food safety, public health etc.) in order to strengthen and optimize the system and to focus future research and monitoring activities.

9. Tracing sources of foodborne pathogens – challenges and opportunities (EE)

The presentation highlights the importance of using whole-genome sequencing (WGS) data for outbreak assessments and source attribution analysis in food safety, emphasizing open genomic data sharing for public health benefit. Collaborative efforts between academia, competent authorities, and food industry stakeholders are crucial for both retrospective and real-time analyses when using WGS data in food safety.

10. Risk assessment of *Mycobacterium tuberculosis* complex in raw goat's milk and raw goat's milk cheese)(FR)

This Anses opinion evaluates the risk of tuberculosis transmission to humans from consuming raw milk products from goats infected with *Mycobacterium bovis*. A dose response was established and a QMRA was developed. The model reveals a high risk, particularly when large numbers of goats are carriers of *M. bovis*, underscoring the importance of systematic pasteurization to mitigate this risk. It was concluded that consumption of raw milk and raw milk cheeses from farms contaminated with *M. bovis* poses a risk of developing clinical tuberculosis in humans, estimated at a 0.01% chance per portion from smaller herds. Systematic pasteurisation of milk from farms with confirmed cases of *M. bovis*, awareness and education of consumers and producers about the risks associated with raw milk, and enhanced surveillance, and testing on farms, particularly those producing raw milk cheese are recommended.

11. The 'Pathogens in foods' (PIF) database (FR)

An update was provided about the PIF database (see at <https://pif.esa.ipb.pt/>), that is a database of systematically formatted prevalence and enumeration data of pathogenic bacteria, parasites and viruses in foods, extracted from published peer-reviewed articles and reports since 2000. An associated web application (R-Shiny) allows to search for specific contamination data, perform descriptive statistical analysis by food category, by country or by pathogen, or perform meta-analysis. It is a tool for food safety researchers and food safety authorities for the development of risk assessment models, risk ranking and risk management. The development of the database is currently supported by EFSA through a grant agreement



GP/EFSA/BIOHAW/2022/01 (2022-2026) that has as main goal to communicate about and maintain the PIF database whilst making improvements, for example to align the terminology with EFSA's catalogue. Another grant agreement GP EFSA BIOHAW 2023 05 (2023-2026) aims to extend the database with data on relevant *Vibrio* spp. in seafood and of parasites of public health importance in fishery products, triggered by the receipt of two EFSA mandates (see points 18 and 19). PIF documentation is available at <https://zenodo.org/communities/pif/>. PIF is regularly used for Anses risk assessment and in particular for the risk ranking of biological hazards in foods; for example, in raw milk cheese². Feedback and suggestions to improve user experience of PIF are highly appreciated by its developers. A survey will be carried out in 2025 to take note of user groups and use cases and explore possible enhancements in terms of content (e.g., more pathogens or matrices, inclusion of AMR) or usability (e.g., interface to help the various use cases).

12. Importance of national Salmonella control program for pigs and Salmonella risk assessment of meat (FI)

Two recent Salmonella projects from Finnish Food Authority were presented. The economic and public health significance of Finnish Salmonella control program of pigs was assessed with scenario-based method. The prevalence and costs of Salmonella in whole domestic pork production chain and in imported pork were assessed, as well as burden of disease and costs due to human salmonellosis associated with consuming pork. Results suggest that the control program has a positive impact both on public health and national economy in Finland.

Other Salmonella risk assessment examined meat and meat products included in Finnish Salmonella control program (poultry, beef, and pork), and the risk of consumers to contract Salmonella from these. The domestic meat production chains and imported meat and meat products were examined separately. Source attribution based on serotyping data from isolates from domestic meat production chains and imported meat as well as human salmonellosis was also conducted. According to the results, the imported meat was estimated to cause more salmonellosis cases than Finnish meat, although the consumed amount of imported meat was considerably lower.

13. Salmonella spp. in coated poultry placed on the market in Ireland (IE)

In 2022, a national microbiological survey was undertaken by the Food Safety Authority of Ireland (FSAI) on the microbiological quality of chilled and frozen coated poultry placed on the market in Ireland. It showed that five of 382 samples (1.3%) of non-RTE chilled and frozen coated poultry placed on the market in Ireland were contaminated with *Salmonella*. All isolates were serotyped as *Salmonella Infantis* and demonstrated AMR. A consumer behavior survey on frozen breaded chicken in Ireland was conducted, showing risky behavior, for example 34% never or rarely follow the

² <https://www.anses.fr/fr/system/files/BIORISK2019SA0033.pdf>



cooking instructions. Consumers are advised to follow the cooking instructions exactly as labelled on coated poultry and practice good hygiene during preparation to minimise the risk of salmonellosis.

14. Rising energy costs and their impact on food safety in Switzerland: A consumer perspective (CH)

The cost of living and energy prices have risen sharply since April 2022. Some sections of the population had to adjust their standard of living, which may have consequences for food safety. This study looked at this issue and questioned more than 1,200 people in Switzerland in early February 2024 on their behaviour. In Switzerland too, rising costs in general and energy costs in particular are having a negative impact on the population's behaviour with regard to food safety: a significant proportion of those surveyed have adopted inappropriate storage practices, such as increasing the temperature of the fridge; they have chosen to introduce energy-saving measures to the detriment of food safety, for example by changing a cooking method. They have also sometimes preferred to consume products after their expiry date. This phenomenon illustrates the importance of promoting awareness and education about food safety, while developing policies that support vulnerable households in the face of rising costs.

15. Investigation of raw milk from vending machines – an Austrian update (AT)

An update was given on the sampling of raw milk from vending machines in four different years (2017, 2020, 2022, 2023). The legal background in Austria states to label as "Raw milk, boil before consumption". A possible trend noted was that "Information signs" are installed – at the latest after a notice by the food inspection/report – and that the number of milk vending machines seems to be decreasing. No/hardly any trends were recognised for complaint rates, pathogens, mesophilic total bacterial count.

16. Microbiological contamination of carcasses in the broiler slaughter process – a baseline study from the KontRed project (DE)

"Kontred" is a project for the reduction of contamination with zoonotic agents at the end of the slaughter line by optimisation and control of the existing processes and procedures. The contamination of carcasses in the broiler slaughter process with Total Colony Count (TCC), *Escherichia coli* and *Campylobacter* was analysed along the processing line in three slaughterhouses and the results were presented. Contamination decreased but there is a recontamination during defeathering and evisceration. Measures for reduction of the microbiological contamination (such as application of hot water, cold air, modified atmosphere packaging) were investigated and data analysis and modelling conducted, which will be published.



17. Establishment of shelf-life of certain ready-to-eat foods sliced or cut and packaged before sale in retail establishments (ES)

The report of the Scientific Committee of the Spanish Agency for Food Safety and Nutrition³ was presented. They assessed the shelf-life, in relation to the possible presence of *Listeria monocytogenes*, of certain products (cheeses, cooked meat products, including pâtés, and cured meat products) which are divided up or sliced and packaged (vacuum packed or not) before sale, in retail establishments, to ensure consumer safety. For this purpose, factors associated with the presence and growth of biological hazards (water activity (a_w), pH, ripening time) have been established for each of the product categories considered and published predictive microbiology models have been used to establish shelf-life. The manufacturer may establish alternative shelf-life times to those stated in the report if he is able to demonstrate that the product has a combination of factors and/or packaging and storage conditions that ensure that the concentration of *L. monocytogenes* is below 100 CFU/g at the time of consumption. For vacuum-packed foods, the potential risk due to the possible presence of *Clostridium botulinum* and enteric viruses has also been considered and does not affect the stated recommendations.

18. Public health aspects of *Vibrio* spp. related to the consumption of seafood in the EU (EFSA)

The recently published EFSA opinion⁴ on the public health aspects of *Vibrio* spp. related to the consumption of seafood in the EU was presented. Of note is that genes conferring resistance to medically important antimicrobials and associated with mobile genetic elements are increasingly detected in vibrios and that it is anticipated that the occurrence and levels of the relevant *Vibrio* spp. in seafood will increase in response to coastal warming and extreme weather events, especially in low-salinity/brackish waters. While some measures, like high-pressure processing, irradiation or depuration reduce the levels of *Vibrio* spp. in seafood, maintaining the cold chain is important to prevent their growth. A key research priority is an EU-wide baseline survey for the relevant *Vibrio* spp. in relevant seafood products, including at the primary production and retail stages.

19. Update on BIOHAZ Panel activities

The EFSA BIOHAZ Team presented ongoing and completed activities.

Ongoing activities:

- Carbapenemase-producers in food-producing animals (EFSA-Q-2024-00149)
Deadline: 30 June 2027 (1st opinion Dec. 2024, 2nd June 2027)

³

https://www.aesan.gob.es/AECOSAN/docs/documentos/seguridad_alimentaria/evaluacion_riesgos/informes_cc_ingles/SLICED_FOOD.pdf

⁴ <https://www.efsa.europa.eu/en/efsajournal/pub/8896>



- Request for a re-evaluation of EFSA Scientific Opinion of April 2010 on risk assessment of parasites in fishery products based on new scientific data – addressing terms of reference 4 (EFSA-Q-2023-00172), **Deadline:** 31 December 2024
- Self-task mandate on microbial hazards associated with the use of water in the handling and processing operations of fresh and frozen fruits, vegetables and herbs (ffFVHs). **Deadline:** 31 December 2024

Completed activities:

- Self-task mandate of the BIOHAZ panel on the public health aspects of *Vibrio spp.* related to the consumption of seafood in the EU (EFSA-Q-2022-00826), **Deadline:** 30 June 2024
- Request for scientific and technical assistance regarding the impact of the proposed revised Australia's microbiological monitoring programme for beef and sheep meat exported to the EU (EFSA-Q-2023-00058), **Deadline:** 30 June 2024
- Update of the list of qualified presumption of safety (QPS) recommended microbiological agents intentionally added to food or feed as notified to EFSA 19: Suitability of taxonomic units notified to EFSA until September 2023 (EFSA-Q-2021-00771) <https://doi.org/10.2903/j.efsa.2024.8517>

Any Other Business

The next MRA network meeting is planned for autumn 2025 in Parma.