



JOINT FAO/WHO FOOD STANDARDS PROGRAMME

CODEX COMMITTEE ON FOOD HYGIENE

Fifty-fifth Session

Nashville, Tennessee,

United States of America

15 - 19 December 2025

MATTERS ARISING FROM THE WORK OF FAO AND WHO (INCLUDING JEMRA)

(Prepared by FAO and WHO)

INTRODUCTION

1. This paper describes the scientific advice as well as related information and resources that the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) have developed relevant to the specific agenda items of the 55th Session of the Codex Committee on Food Hygiene (CCFH).

A) Joint FAO/WHO Expert meetings on microbiological risk assessment (JEMRA)

A.1 Microbiological risk assessment of viruses in foods (Relevant to Agenda Item 7)

2. In response to the request by CCFH53, the JEMRA meeting on microbiological risk assessment of viruses in foods – Part 2: prevention and intervention measures was convened in Geneva, Switzerland from 12-16 February 2024.
3. The Expert Committee reviewed the scientific literature published since the 2008 JEMRA report on foodborne viruses, relative to control measures to protect the food supply chain from contamination with foodborne viruses. The virus-commodity pairs chosen were those identified in Part 1 (Food Attribution, Analytical Methods and Indicators) of this series of expert meetings.
4. Specifically, during this Part 2 meeting, the Expert Committee: 1) reviewed the relevant scientific literature; 2) deliberated on the developments that have occurred in control of foodborne viruses in the relevant food supply chains since the 2008 JEMRA report; and 3) identified the most promising approaches to further protect the food supply chain from virus contamination.
5. The Expert Committee decided that water intended for drinking was not within the scope of this committee. Water relevant to virus transmission was considered only for water used in food production, processing, and preparation; used as an ingredient; and as a vehicle for food contamination; where water is not the final product that is consumed.
6. The Part 2 Expert meeting focused on these virus-commodity combinations and their associated contamination routes. Human faecal matter and vomit from infected individuals are the primary sources of contamination for norovirus and hepatitis A virus. Across the food supply chain, the primary contamination routes are faecally-impacted waters, food handlers carrying foodborne viruses, and surfaces. Zoonotic hepatitis E virus is present in the meat, organ tissues, and excretions of infected swine and some game animals. Since that initial expert meeting report from 2008, awareness of the public health importance of these foodborne virus-commodity combinations has increased, resulting in additions or changes to some food supply chain management strategies and research initiatives. Prevention remains the cornerstone of control of foodborne viruses. This is because these viruses are environmentally persistent and resistant to many treatments commonly used to inactivate foodborne pathogens. Effective inactivation methods continue to be necessary and are currently being evaluated.
7. A hybrid meeting to discuss simple and user-friendly tools for viral risk assessment was held on 26 July 2025 to deal with the request from the CCFH53.

8. A **summary report** of the JEMRA meeting on Microbiological risk assessment of viruses in foods was published¹.

Follow-up action by CCFH

9. CCFH55 is invited to consider the aforementioned information for the discussion of the revision of the *Guidelines on the Application of General Principles of Food Hygiene to the Control of Viruses in Food* (CXG 79-2012).

B) Ad hoc Joint FAO/WHO Expert Consultation on Risk Assessment of Food Allergens (Relevant to Agenda Item 10)

10. FAO and WHO have convened a series of expert meetings on food allergen risk assessment since 2020, addressing priority allergens, threshold levels, precautionary labelling, exemptions, and thresholds, and published four brief brochures summarizing the outcomes. At CCFH 54, the results were presented to improve knowledge sharing and align with the relevant Codex documents.
11. In June 2025, an expert consultation in Rome emphasized that food allergens were a unique category of food safety hazards, requiring distinct risk assessment and management approaches. A framework² was developed to guide evidence-based decision-making on labelling, process control, and risk communication throughout the supply chain. This process is applicable to all food business operators, regardless of size, and is essential for justifying precautionary allergen labelling (PAL).
12. Another consultation will be held in November 2025 to establish reference doses for cereals containing gluten and discuss methods for gluten detection, appropriate cleaning procedures, and minimum performance criteria for analytical testing, focusing on reducing risk to consumers with coeliac disease.

Follow-up action by CCFH

13. CCFH55 is invited to consider the aforementioned information in determining the next steps to update the *Code of Practice on Food Allergen Management for Food Business Operators* (CXC 80-2020) and align the work and language/terminology between different Codex Committees.

C) OTHER RELATED INFORMATION

Matters arising jointly from FAO and WHO

FAO/WHO workshop on food allergens

14. FAO and WHO organized a capacity building workshop on precautionary allergen labelling (PAL) and risk assessment of food allergens, following a request from CCFL. The workshop took place in Nanning, Guangxi, China, on 19–20 September, scheduled just before CCASIA23 (22–26 September) at the same location. Over 60 experts from 11 nations across Asia, Africa, and Latin America participated the workshop.
15. The primary purpose of this workshop was to enhance the capacity of Member Countries in conducting risk assessments for food allergens, ensuring alignment with the latest international standards. Through expert-led sessions, interactive discussions, and practical exercises, participants gained the necessary knowledge and tools to identify, evaluate, and manage food allergen-related risks in food supply chains. The structure of the workshop was: Technical sessions with hands-on training and discussions on Day 1; Field visit to a dairy factory to observe practical risk assessment implementation in the morning of Day 2; Debrief and discussion on risk assessment applications for food allergens in the afternoon of Day 2.
16. Additionally, the workshop served as a platform to facilitate the implementation of updated international regulations and policies on food allergens. By fostering collaboration and knowledge-sharing, the event managed to strengthen national food safety frameworks to better address food allergen risks, improve compliance with global allergen labelling and control requirements, support harmonization of regulatory approaches across Member Countries. This initiative underscores our commitment to safeguarding food safety while ensuring fair trade practices in the food industry.
17. A workshop report will be published.

¹ <https://openknowledge.fao.org/server/api/core/bitstreams/b32881c4-2f97-476d-9bc5-8e9d0aeedbcd/content> and <https://www.who.int/publications/m/item/jemra-of-viruses-in-foods-part-2-prevention-and-intervention-measures>

² <https://openknowledge.fao.org/handle/20.500.14283/cd6046en> and <https://www.who.int/publications/m/item/ad-hoc-joint-fao-who-expert-consultation-on-risk-assessment-of-food-allergens-guidance-for-risk-assessment>

JEMRA work on the use of omics-based technologies in microbiological risk assessment

18. In addition to the scientific advice requested directly, the FAO/WHO secretariats have been working to update risk assessment methodologies, taking into account recommendations from experts, JEMRA meetings, and the latest scientific developments.
19. This project will:
 - a. compile a catalogue of currently available omics (namely genomics/metagenomics, transcriptomics, proteomics and metabolomics) technologies and methodologies for microbiological risk assessment;
 - b. review and assess the challenges, obstacles and benefits of applying these technologies and methods for data generation, collection, and analysis in multidimensional scenarios; map and develop approaches to reduce data variability and increase the interoperability of outputs;
 - c. provide scientific options on how to choose, analyse, and translate the omics data and methods for microbiological risk assessment purposes; and
 - d. review and consider practices that require standardized microbiological food safety omics practice by considering in vitro and in vivo, genotype and phenotype, epigenetic, strain variability, microbial interactions, behaviour changes, etc.
20. A call for data and experts was released in November 2025 and the meeting will be convened in March 2026. Regular updates on progress will be provided to the Committee.

Matters arising from FAO

FAO workshop on the Safety and Quality of Water in Fisheries (Relevant to Agenda Item 5)

21. The FAO Workshop on the Safety and Quality of Water in Fisheries took place in Choluteca, Honduras, from 23 to 25 April 2025. Hosted by SENASA Honduras and led by FAO, the event brought together about 50 participants from 11 countries, including scientists, regulators, and industry representatives. The workshop served as a platform to share key findings from JEMRA's Microbiological Risk Assessments 33³ and 41⁴, while also providing training on the application of JEMRA's decision trees (DTs) for risk assessments in fish production and processing. Through a combination of desktop exercises and field visits, participants validated the practicality of these tools and contributed insights to support the development of Codex Guidelines for the Safe Use and Reuse of Water in Food Processing.
22. A central theme of the workshop was the endorsement of a risk-based, fit-for-purpose approach to water management, emphasizing the importance of risk assessment, treatment optimization, and food safety measures. While the JEMRA DTs were recognized as valuable starting tools, participants identified opportunities for adaptation to enhance their specificity and applicability across diverse scenarios. The validation exercises, conducted both in simulated and real-world settings, demonstrated the DTs' effectiveness in addressing water used for food safety challenges in fishery.
23. National representatives shared perspectives on existing regulatory frameworks, highlighting variations in standards, infrastructure limitations, and the need for greater harmonization. To facilitate broader adoption of the DTs, participants recommended the development of supplementary guidance materials, including case studies and monitoring protocols. Additionally, aligning these tools with Codes of Practice and national regulations was emphasized as a critical step forward. Strengthening collaboration among Codex, JEMRA, and national authorities was also highlighted as a key strategy to standardize practices of safe water used in foods, ensuring both trade compliance and sustained food safety.
24. The workshop report was published⁵. CCFH55 is invited to consider the aforementioned information in the discussion of the *Guidelines for the safe use and reuse of water in food production and processing (CXG 100-2023): Proposed draft Annex II on Fish and fishery products*.

FAO expert meeting on microbiological risk assessment of toxigenic clostridia in foodborne disease (Relevant to Agenda Item 10)

25. The expert meeting was convened in Rome, Italy from 17-21 February 2025. The Expert Committee reviewed recent scientific developments, data, and evidence associated with foodborne toxigenic clostridia, specifically including an up-to-date review of the disease burden, attribution to food commodities of highest public health concern, analytical methods in food commodities and control measures. *Clostridium perfringens* typically causes relatively mild, self-limiting, gastroenteritis and ranks as one of the most frequent causes of foodborne

³ <https://openknowledge.fao.org/items/22a28890-f485-4a40-9cfb-dcc7f029a324>

⁴ <https://openknowledge.fao.org/items/298bdf7-4e51-4ee1-941a-51c757de6232>

⁵ <https://openknowledge.fao.org/handle/20.500.14283/cd7089en>

illnesses in many countries. *Clostridioides difficile* causes antimicrobial-associated diarrhoea and colitis. Recent data support a role for food in the epidemiology of *C. difficile* infections

26. While the full report is still under development, the summary report has been published⁶. CCFH55 is invited to consider the aforementioned information in considering any future work to update relevant texts such as the Code of hygienic practice for pre-cooked and coked food in mass catering (CXC 39-1993) or whether new work might be needed to develop a guideline for the control of toxigenic clostridia in foods. This work may also be relevant for Codex commodity standards where there is specific reference to the control of clostridia such as the Standard for smoked fish, smoke-flavoured fish and smoke dried fish (CXS 311-2013).

FAO expert meeting on microbiological risk assessment of protozoan parasites in foods (Relevant to Agenda Item 10)

27. An FAO expert meeting on microbiological risk assessment of protozoan parasites in foods was convened in Rome, Italy from 26-30 May 2025. The expert committee reviewed recent scientific developments, data, and evidence associated with foodborne protozoan parasites, specifically including information on the disease burden, attribution to food commodities of highest public health concern, analytical methods in food commodities and control measures. The protozoan parasites identified as most important for foodborne risk (listed alphabetically) include *Cryptosporidium* spp., *Cyclospora cayetanensis*, *Entamoeba histolytica*, *Giardia duodenalis* (syn. *lamblia* and *intestinalis*), *Toxoplasma gondii*, and *Trypanosoma cruzi*.
28. The full report is under development, and the summary report was published⁷. CCFH55 is invited to consider the aforementioned information in considering any future work to update the current CXG 88-2016 *Guidelines on the Application of General Principles of Food Hygiene to the Control of Foodborne Parasites*.

FAO expert meeting on microbiological risk assessment of helminths parasites in foods (Relevant to Agenda Item 10)

29. An FAO expert meeting on microbiological risk assessment of helminths parasites in foods was convened in Rome, Italy from 6-10 October 2025. The expert committee reviewed recent scientific developments, data, and evidence associated with foodborne helminths parasites, specifically including information on the disease burden, attribution to food commodities of highest public health concern, analytical methods in food commodities and control measures. The protozoan helminths identified as most important for foodborne risk (listed alphabetically) include *Diphyllobothriidea*, *Spirometra*, *Echinococcus* spp., *Taenidae*, *Metastrongylidae*, *Anisakidae*, ascarids (*Ascarididae*, *Toxocaridae*, *Ascarididae*), *Gnathostomatidae*, *Trichinellidae*, *Trichuridae*, *Fasciolidae*, *Heterophyidae* and other intestinal flukes, *Opisthorchidae*, and *Troglorematidae*.
30. The full report is under development, and the summary report was published⁸. CCFH55 is invited to consider the aforementioned information in considering any future work to update the current CXG 88-2016 *Guidelines on the Application of General Principles of Food Hygiene to the Control of Foodborne Parasites*, CXG 85-2014 *Guidelines for the Control of Taenia Saginata in Meat of Domestic Cattle*, and CXG 86-2015 *Guidelines for the Control of Trichinella Spp. in Meat of Suidae*.

FAO raises awareness about food safety

31. FAO, in collaboration with a not-for-profit partner in the United States, is launching a new initiative that simultaneously raises awareness about food safety, sustainability, economic development and gender equity in low- and middle-income countries. This proposed activity is called Flip-the-Script as it envisions agrifood systems from the table to the farm, as opposed the traditional farm-to-table paradigm. Moreover, it promotes role and influence of women chefs in a profession dominated by men. To learn more or to support this effort see the flyer⁹ or contact food-safety@fao.org.

Matters arising from WHO

Web-based tool for listeriosis risk assessment in foods (Relevant to Agenda Item 9)

32. JEMRA developed risk assessment models for listeriosis on Ready-to-eat (RTE) diced cantaloupe, frozen vegetables, and RTE cold-smoked fish¹⁰. In this process, WHO developed a web-based risk assessment tool, with a user-friendly interface using Shiny application platform, and published eight articles related to the topic

⁶ <https://openknowledge.fao.org/handle/20.500.14283/cd4531en>

⁷ <https://openknowledge.fao.org/handle/20.500.14283/cd5773en>

⁸ <https://openknowledge.fao.org/handle/20.500.14283/cd7348en>

⁹ https://drive.google.com/file/d/18GGMj_ihQ0RhrWjACbt6D4wqhJVePOKe/view?usp=sharing

¹⁰ <https://openknowledge.fao.org/server/api/core/bitstreams/7be15013-c4a0-4fc3-9088-4db8a2fe6a43/content> and <https://www.who.int/publications/m/item/jemra-of-listeria-monocytogenes-in-foods-part-2-risk-assessment-models>

including critical reviews of available risk assessment models for *Listeria monocytogenes* in foods¹¹, the description of the developed quantitative risk assessment models for the three food commodities¹² and the updated parameters of the dose–response model¹³. The tool is available now¹⁴.

33. The tool provides an overall risk estimate for scenario analysis. The dose-response model incorporating both the virulence class of the *L. monocytogenes* strain and demographic factors such as age and sex, can be used, which improves the accuracy of risk estimation across population groups and strain types. The tool also allows users to assess the impact of different testing strategies and sample sizes, supporting informed decision-making under varied production and surveillance conditions.

Update of WHO Global Strategy for Food Safety (Relevant to Agenda Item 10)

34. Regarding the WHO Global Strategy for Food Safety 2022-2030¹⁵, WHO is working with regional offices to monitor and support the progress on the indicators of the strategy, particularly on indicators derived from the International Health Regulations (IHR, 2005).
35. An investment case on the surveillance of foodborne diseases was produced by WHO and is in the pipeline for publication. It demonstrated the positive return of investing in surveillance in the reduction of the burden of foodborne diseases in middle-income countries. WHO has prepared a roadmap development tool to support Member States in the development of their national roadmaps to guide the implementation of the Strategy.
36. WHO also established the WHO Alliance for Food Safety¹⁶, a network to support the implementation of the Strategy with a particular focus on accelerating actions to improve foodborne disease surveillance.

WHO Foodborne Disease Burden Estimates 2025 edition (Relevant to Agenda Item 10)

37. Between late-2024 and mid-2025, WHO led a series of key initiatives to advance global efforts in estimating the burden of foodborne diseases. During CAC47¹⁷, WHO hosted a side event titled “*Foodborne Disease Data for Action: National Engagement to Finalize the Next WHO Burden Estimates*”. The event emphasized the importance of Member State involvement in shaping the upcoming estimates and outlined the methodological framework.
38. From June to July 2025, WHO conducted a formal country consultation, sharing confidential preliminary modelled national estimates on incidence, mortality, and DALYs associated with 42 food hazards. Member States were invited to provide feedback and contribute additional data to refine the results. Final estimates are expected in early 2026. To support this process, WHO organized two webinars: “*Source Attribution Method in the Foodborne Diseases Estimates*” in November 2024¹⁸, and “*From Data to Impact – Four Imperatives for Turning Information into Action*”, co-hosted with FAO on World Food Safety Day of 2025¹⁹. These events highlighted the value of data-driven approaches particularly for national risk ranking and the need for sustainable frameworks to quantify national burdens for better risk management and resource allocations.

WHO Guidelines on Traditional Food Markets (Relevant to Agenda Item 10)

39. The World Health Assembly 75²⁰, requested to update the interim guidance on reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets to answer questions on the scope of the guidance, including the species that the guidance covers and farmed or nature-caught wild animals.
40. WHO called for experts and selected 22 experts to form the Guidelines Development Group. The first meeting happened in November 2023 with the definition of the research criteria for the systematic reviews. The WHO commissioned the systematic reviews, and the GDG will meet in the first half of 2026 to draft recommendations that will be peer reviewed and submitted for public consultation before the final publication.

D) PUBLICATIONS

¹¹ <https://doi.org/10.3390/foods13071111>; <https://doi.org/10.3390/foods13050716>;

<https://doi.org/10.3390/foods13030359>; <https://doi.org/10.3390/foods12244436>

¹² <https://doi.org/10.3390/foods13233831>; <https://doi.org/10.3390/foods13223610>; <https://doi.org/10.3390/foods14132212>

¹³ <https://doi.org/10.3390/foods13050751>

¹⁴ https://worldhealthorg.shinyapps.io/Shiny_graLm/

¹⁵ <https://www.who.int/publications/i/item/9789240057685>

¹⁶ <https://www.who.int/initiatives/who-alliance-for-food-safety>

¹⁷ <https://www.who.int/news/item/07-02-2025-codex-alimentarius-commission-spotlight-on-side-events-at-the-forty-seventh-session-in-geneva>

¹⁸ <https://www.who.int/news-room/events/detail/2024/11/05/default-calendar/webinar-source-attribution-method-in-the-foodborne-diseases-estimates>

¹⁹ <https://www.who.int/news-room/events/detail/2025/06/03/default-calendar/webinar-from-data-to-impact-four-imperatives-for-turning-information-into-action>

²⁰ [https://apps.who.int/gb/ebwha/pdf_files/WHA75/A75\(23\)-en.pdf](https://apps.who.int/gb/ebwha/pdf_files/WHA75/A75(23)-en.pdf)

41. All the publications in the Microbiological Risk Assessment (MRA) Series and Food Safety and Quality (FSQ) Series are available on the FAO (<https://www.fao.org/food-safety/resources/publications/en/>) and WHO ([https://www.who.int/groups/joint-fao-who-expert-meetings-on-microbiological-risk-assessment-\(jemra\)](https://www.who.int/groups/joint-fao-who-expert-meetings-on-microbiological-risk-assessment-(jemra))) websites.

Recent publications

Full reports

- Risk assessment of food allergens, Part 4: Review and establish exemptions for the food allergens, Meeting report. Food Safety and Quality Series No 17. Available at: <https://doi.org/10.4060/cc9554en>
- Measures for the control of *Campylobacter* spp. in poultry meat: meeting report. Microbiological Risk Assessment Series No 46. Available at: <https://doi.org/10.4060/cc9607en>
- Risk assessment of *Listeria monocytogenes* in foods: Part 1: Formal models: meeting report. Microbiological Risk Assessment Series No 47. Available at: <https://doi.org/10.4060/cd3383en>
- Risk assessment of *Listeria monocytogenes* in foods. Part 2: Risk Assessment. Microbiological Risk Assessment Series No 48. Available at: <https://doi.org/10.4060/cd6702en>
- Microbiological risk assessment of viruses in foods. Part 1: Food attribution, analytical methods and indicators: meeting report. Microbiological Risk Assessment Series No 49. Available at: <https://doi.org/10.4060/cd3396en>

Summary reports

- Ad hoc Joint FAO/WHO Expert Consultation on Risk Assessment of Food Allergens – guidance for risk assessment. Summary and Conclusions. Available at: <https://openknowledge.fao.org/handle/20.500.14283/cd6046en> and <https://www.who.int/publications/m/item/ad-hoc-joint-fao-who-expert-consultation-on-risk-assessment-of-food-allergens-guidance-for-risk-assessment>

Forthcoming publications

- Microbiological risk assessment of viruses in foods. Part 2: Prevention and intervention measures. Microbiological Risk Assessment Series No 50.