
WHO global strategy for food safety

Reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets – infection prevention and control

Report by the Director-General

1. In August 2020, the Seventy-third World Health Assembly adopted the resolution WHA73.5 on “Strengthening efforts on food safety”. Member States requested the Director-General to update the WHO strategy for food safety 2002,¹ in coordination with the Food and Agriculture Organization of the United Nations (FAO), and in consultation with Member States and the World Organisation for Animal Health (OIE).² The resolution called on WHO to address current and emerging challenges and to take innovative approaches for strengthening national food safety systems.

2. Following a request from a Member State and the recommendation of the Officers of the Board and the Director-General in September 2021 to include an item on reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets – in the provisional agenda of the 150th session of the Executive Board, combined with the existing item on food safety, this report summarizes WHO’s current interim guidance published on 12 April 2021 on this issue. It also describes its connections with ongoing work in the Organization including the updated Global Food Safety Strategy² and the One Health Initiative.

INTRODUCTION

3. One of the key challenges to food safety, exacerbated by the COVID-19 pandemic, is the management of the risks associated with traditional food markets. WHO’s Healthy Food Markets initiative recognized the important role of traditional food markets as major hubs of informal urban economies and the main source of affordable fresh foods, especially for many low-income groups.³ Traditional food markets, sometimes referred to as “wet markets”, vary widely from country to country, depending on the local culture, socioeconomic conditions, food varieties and dietary preferences. Traditional food markets have important economic, cultural and social roles and are a source of livelihoods for millions of people in both urban and rural areas. However, all traditional food markets

¹ WHO global strategy for food safety: safer food for better health. Geneva: World Health Organization; 2002 (<https://apps.who.int/iris/handle/10665/42559>, accessed 18 November 2021).

² See document EB150/25 on the updated version of the strategy and full draft strategy available at <https://www.who.int/publications/m/item/draft-who-global-strategy-for-food-safety-2022-2030>.

³ WHO. A guide to healthy food markets. Geneva: World Health Organization; 2006 (http://apps.who.int/iris/bitstream/handle/10665/43393/9241593938_eng.pdf, accessed 18 November 2021).

should share one major feature: they should play a central role in providing access to safe, healthy, nutritious and culturally appropriate food, promoting health and preventing disease.

4. All evidence to date suggests that COVID-19 is highly unlikely to be foodborne. Food or food packaging is not a usual pathway for the spread of human respiratory pathogens, including SARS-CoV-2. This virus is primarily transmitted during close contact among people through respiratory droplets and aerosols generated by actions such as coughing, sneezing, shouting, singing and speaking.¹ There is emerging evidence to show animal-to-human transmission of SARS-CoV-2 within mink farms.²

5. A typical traditional market is a semi-open space with vending stalls organized in rows with narrow aisles. Water is used for washing fresh produce, during the handling of raw flesh, such as filleting fish and dressing of animal carcasses after slaughter, and for cleaning work surfaces, floors and drains. Water from the melting of ice used to chill foods also contributes to the wet market environment. Traditional food markets are usually divided into sectors that sell different categories of food products. Some areas of the market, for instance where fish are sold, will be designated wet and those selling dried spices or cereals will be designated as dry. Cooked foods are also frequently sold for consumption in the market area and as take-away foods. As renting space is usually expensive, stalls may be very close to each other, with little or no physical separation.

6. Traditional food markets are usually governed by complex administrative structures with multiple overlapping responsibilities between different regulatory and law enforcement agencies. Such markets may also be characterized by the inadequate allocation of financial resources for maintenance and improvements. These factors can impede the coordinated approach that is essential for improving hygiene standards and food safety in markets. However, traditional food markets that are regulated by national or local competent authorities and enforced properly to operate to high standards of hygiene and sanitation provide a safe environment for market workers and for the public to purchase foods and reduce risks of food contamination.

7. Risks to public health may increase when the sale and slaughter of live animals for food, especially wild animals, take place in areas open to the public in traditional markets. When live animals are kept in cages or pens, and/or slaughtered and dressed in open market areas, these areas become contaminated with body fluids, faeces and other waste, increasing the risk of transmission of pathogens to workers and customers, and potentially resulting in spillover of pathogens to other animals in the market. Such environments provide the opportunity for animal viruses, such as coronaviruses, to amplify themselves and transfer to new hosts, including human beings.

8. The strong association between the marketing and sale of live wild animals and the emergence of novel zoonotic has long been recognized. Animals, particularly wild animals, are reported to be the

¹ WHO. Coronavirus disease (COVID-19): how is it transmitted? Geneva: World Health Organization; 2021 (<https://www.who.int/emergencies/diseases/novel-coronavirus-2019/question-and-answers-hub/q-a-detail/coronavirus-disease-covid-19-how-is-it-transmitted>, accessed 17 November 2021).

² Oude Munnink BB, Sikkema RS, Nieuwenhuijse DF, Molenaar RJ, Munger E, van der Spek A et al. Transmission of SARS-CoV-2 on mink farms between humans and mink and back to humans. *Science* 2021; 371:172-177 (<https://www.science.org/doi/10.1126/science.abe5901>, accessed 17 November 2021).

source of more than 70% of all emerging infectious diseases in human beings, many of which are caused by novel viruses.^{1,2}

9. The COVID-19 pandemic stems from the introduction of the novel coronavirus, SARS-CoV-2, into human populations, although the specific mechanism of the emergence of SARS-CoV-2 has not been definitively identified. Although SARS-CoV-1 and SARS-CoV-2 belong to a group of coronaviruses found in mammals, other viruses can be transmitted through non-mammals in traditional markets. An outbreak of avian influenza A (H5N1) in human beings was associated with visits to a retail poultry stall or a market selling live poultry.³

10. WHO, FAO, OIE and the United Nations Environment Programme (UNEP) recognize the repeated emergence of zoonotic diseases and the linkages of some of them along the value chain of the wildlife trade.⁴ SARS and Ebola virus disease are recent examples of diseases that have resulted in severe socioeconomic crises as a consequence of the poorly regulated wildlife trade. It is important to note that these diseases are not foodborne but result from proximity or contact with wild animals, such as in traditional food markets when live animals are housed and slaughtered in areas open to the public.

INTERIM GUIDANCE TO REDUCE PUBLIC HEALTH RISKS ASSOCIATED WITH THE SALE OF LIVE WILD ANIMALS OF MAMMALIAN SPECIES IN TRADITIONAL FOOD MARKETS

11. To reduce the public health risks associated with the sale of live wild animals for food in traditional food markets, WHO, OIE and UNEP published interim guidance in April 2021, recommending several actions that national governments should consider adopting urgently with the aim of making traditional markets safer and recognizing their central role in providing safe and nutritious food and livelihoods for large populations.⁵ This advice builds on WHO's previous relevant guidance for preventing zoonotic and foodborne diseases and was developed as part of both the emergency response to COVID-19 and longer-term urban resilience, encompassing food systems, nutrition and public health. It also complements initiatives at regional level where guidance on safe and healthy food in traditional food markets has been prepared.⁶

¹ Kuiken T, Leighton FA, Foucher RAM, LeDuc JW, Peiris JSM, Schudel A, Stöhr K, Osterhaus ADME. Pathogen Surveillance in Animals. *Science*, 2005; 309:1680-1681 (<https://doi.org/10.1126/science.1113310>, accessed 18 November 2021).

² Van Doorn, HR. Emerging Infectious Diseases. *Medicine (Abingdon)* 2014; 42:60–63. Published online 2013 Dec 21. doi:10.1016/j.mpmed.2013.10.014 (<https://pubmed.ncbi.nlm.nih.gov/24563608/>, accessed 18 November 2021).

³ Mounts AW, Kwong H, Izurieta HS, Ho YY, Au TK, Lee M et al. Case-control study of risk factors for avian influenza A (H5N1) disease, Hong Kong, 1997. *J Infect Dis* 1999; 180:505–508 (<https://doi.org/10.1086/314903>, accessed 18 November 2021).

⁴ OIE. April 2020. Statement of the OIE Wildlife Working Group, April 2020: Wildlife trade and emerging zoonotic diseases. Paris: World Organisation for Animal Health; 2020 (https://www.oie.int/fileadmin/Home/eng/Our_scientific_expertise/docs/pdf/COVID-19/A_OIEWildlifeTradeStatement_April2020.pdf, accessed 18 November 2021).

⁵ WHO. Reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets: interim guidance, 12 April 2021 (<https://www.who.int/publications/i/item/WHO-2019-nCoV-Food-safety-traditional-markets-2021.1>, accessed 18 November 2021).

⁶ WHO Regional Office for Europe. Safe and healthy food in traditional food markets in the WHO European Region, January 2021. Copenhagen: WHO Regional Office for Europe; 2021. (<https://apps.who.int/iris/bitstream/handle/10665/340954/WHO-EURO-2021-1854-41605-56825-eng.pdf>, accessed 18 November 2021).

Emergency regulations to suspend live wild animal sales in traditional food markets

12. In the interim guidance, WHO, OIE and UNEP have called on all national competent authorities to suspend the trade in live-caught wild animals of mammalian species for food or breeding and to close sections of food markets selling live caught wild animals of mammalian species as an emergency measure unless demonstrable effective regulations and adequate risk assessment are in place.

13. The rationale for this recommendation is the strong association between the marketing and sale of live wild animals and the emergence of novel zoonotic pathogens. To mitigate this risk, an immediate emergency measure for regulatory authorities would be to introduce regulations to close these markets or those parts of the markets where live-caught wild animals of mammalian species are kept or sold to reduce the potential for transmission of zoonotic pathogens.

14. These emergency measures should be of a temporary nature while responsible competent authorities conduct a risk assessment of each market to identify critical areas and practices that contribute to the transmission of zoonotic pathogens. Any such new regulations should include provisions for identifying the source of animals to ensure that live-caught wild animals are not illegally introduced to wildlife farms, thus increasing the risk of transmission of zoonotic pathogens circulating in wild populations. These emergency regulations should be time-bound, specifying the date and stipulating the conditions when they no longer apply, when they should be revised, or when their application should be renewed.

15. These new regulations should be introduced as part of an overall strategy to encourage behaviour change with regard to live wild animal markets. Incentives should be considered to encourage safer practices, and risk communication will play an important role in getting buy-in from key stakeholders.

16. There is always the risk that prohibition will not deter all traders in the marketplace and that trade may continue illegally. Penalties for infringement of the new regulations should be sufficiently punitive to encourage compliance, and resources for enforcement must be considered. Additional measures should be considered to support or encourage traders and others involved in the trade of live wildlife for food to find new sources of livelihood.

Improving standards of hygiene and sanitation in traditional food markets to reduce the risk of transmission of zoonotic diseases from live wild animals intended for food and person-to-person transmission of disease

17. In the interim guidance, WHO, OIE and UNEP have called on national competent authorities to strengthen the regulatory basis for improving standards of hygiene and sanitation in traditional food markets to reduce the risk of transmission of zoonotic diseases. During the COVID-19 pandemic, additional measures for crowd control and physical distancing, hand washing and sanitizing stations as well as education on respiratory hygiene including on use of face masks should be introduced in market settings to limit the possibility of person-to-person transmission of disease.

18. The rationale for this recommendation is that traditional food markets have often been associated with the spread of zoonotic diseases and major foodborne disease outbreaks. Conditions in some traditional food markets represent risks to both food safety and occupational health that can be addressed only by improving hygiene and sanitation conditions.

19. Examples of such improvements are the interventions taken to reduce the spread of avian influenza viruses and other emerging zoonotic pathogens in China, Indonesia and Thailand, among other

countries.^{1,2} Competent authorities with responsibilities for managing traditional food markets must learn from these lessons of the past, adopt the concept of healthy food markets promoted by WHO and develop integrated strategies for improving standards of hygiene and sanitation.

Food regulations to control the farming and sale of wild animals that are intended to be placed on the market for human consumption

20. In the interim guidance, WHO, OIE and UNEP have called on all national competent authorities to conduct risk assessments to provide the evidence base for developing regulations to control the risks of transmission of zoonotic microorganisms from farmed wild animals and caught wild animals intended for breeding or human consumption. Regulations should address the traceability of farmed wild animals to ensure that they are distinguished from caught wild animals and should include strict biosecurity measures.

21. The farming of wild animals is common practice in many parts of the world. National food regulations should include strict on-farm biosecurity measures to prevent the introduction or spread of zoonotic diseases. As with all foods of animal origin, specific hygiene requirements for the production, processing and marketing of foods of animal origin, in line with Codex Alimentarius standards, must be included in all national food regulations. Such food regulations should include provisions for adopting a risk-based systematic approach to assess and control microbial hazards across the food chain to enhance food safety. Competent authorities for veterinary controls that are responsible for overseeing and enforcing regulations related to foods of animal origin and zoonoses will need to inspect wild-animal farms and the places where such animals are processed for food, distributed and marketed to ensure compliance. Several other adjustments may be needed. First, specific national regulations relating to animal health and welfare should apply on the farm. Secondly, ante- and post-mortem inspection should apply at the time of slaughter. Thirdly, hygiene and sanitation requirements should apply at all stages of production, processing and marketing. Finally, traceability requirements are necessary.

22. Animal health inspections are a valuable means to identify the clinical signs of infection by these microorganisms and to exclude animals displaying such signs from the food chain. However, not all zoonotic agents produce outward signs of disease in the animal hosts. Thus, strong surveillance of farming and husbandry practices and good hygiene practices in the slaughter, dressing, handling and preparation of both domestic and wild animals are essential.

23. Farms that produce wild animals need to be registered, approved and inspected for animal health and welfare standards by relevant competent authorities. In situations where live farmed wild animals are sold in traditional food markets, a set of food regulations, structural hygiene and sanitation standards should be developed and enforced for the markets. These food regulations should focus on removing public access to the areas where animals are slaughtered and dressed. The slaughtering process should be supervised by veterinary inspectors and conducted in a separate hygienic area with restricted access.

¹ FAO/OIE/WHO. FAO/OIE/WHO Stop the spread: Measures to stop the spread of highly pathogenic bird flu at its source (2005) (<https://apps.who.int/iris/handle/10665/207541>, accessed 9 December 2021).

² WHO. WHO recommendations to reduce risk of transmission of emerging pathogens from animals to humans in live animal markets or animal product markets, 26 March 2020. Geneva: World Health Organization; 2020 (<https://apps.who.int/iris/handle/10665/332217>, accessed 18 November 2021).

Training of food and veterinary inspectors in the compliance and enforcement of new regulations

24. In the interim guidance, WHO, OIE and UNEP have called on national competent authorities to ensure that food inspectors are adequately trained to ensure that businesses comply with regulations to protect consumers' health and are held accountable. In addition, competent authorities responsible for managing food markets should be adequately resourced, so that regulations focused on food animal production, processing and marketing are consistently enforced.

25. Food inspection is a crucial component of a national food control system, as it aims to ensure that food being sold meets the safety requirements defined by food legislation. To meet this goal, food and veterinary inspectors must be trained, qualified and free from conflicts of interests.¹ Strengthening national food control systems is identified in the updated WHO global strategy for food safety as central to protecting consumers' health and reducing the incidence of foodborne disease.

26. Competent authority staff carrying out inspections of wildlife farms or markets that sell farmed wild animals must be adequately trained to enable them to undertake their duties competently and independently, and to perform food safety controls in a consistent manner. Food and veterinary inspectors should work closely with wildlife authorities under clear protocols to identify illegally-traded wild species and to enforce relevant national and international regulations.

27. Competent authorities responsible for managing traditional food markets should also be adequately resourced so that regulations focused on food animal production, processing, and marketing are consistently enforced.

Strengthening surveillance systems for zoonotic pathogens

28. In the interim guidance, WHO, OIE and UNEP have called on national competent authorities to strengthen animal health surveillance systems for zoonotic pathogens and to include both domestic and wild animals. This will provide an early warning for pathogen emergence and provide the evidence base for the development of controls to prevent risks to human health, in association with public health surveillance systems.

29. Human health surveillance is usually the responsibility of the public health sector, whereas surveillance in domestic animals is the responsibility of the veterinary services. Wildlife surveillance, when it exists, is usually the responsibility of the veterinary services and forestry, environment or wildlife sectors.

30. It is important that the national domestic animal and wildlife surveillance systems for zoonotic pathogens, which give early warning for pathogen emergence, are closely coordinated with public health surveillance to provide opportunities to control such pathogens before they can affect human health. Wildlife disease surveillance systems are not yet common but need urgently to be developed and coordinated with domestic animal health surveillance programmes.

¹ OIE. OIE competency guidelines for veterinary paraprofessionals. Paris: World Organisation for Animal Health; 2018 (DOI: <https://dx.doi.org/10.20506/PVS-2758>, https://www.oie.int/fileadmin/Home/eng/Support_to_OIE_Members/docs/pdf/A_Competence.pdf, accessed 18 November 2021).

31. WHO's updated global strategy for food safety identifies the importance of establishing a One Health mechanism, which facilitates integration of and cooperation between all sectors. Additionally, the updated strategy includes an indicator and an associated target for strengthening national foodborne disease surveillance in place for the detection and monitoring of foodborne disease and food contamination, currently monitored under the International Health Regulations (2005).¹

Food safety information campaigns for market traders, stall holders and consumers

32. In the interim guidance, WHO, OIE and UNEP call on national and local competent authorities to develop and implement food safety information campaigns for market traders, stallholders, consumers and the wider general public. These campaigns should communicate the principles of food safety and the risks of transmission of zoonotic pathogens at the human–animal interface and the risks associated with the consumption and trade of wildlife. The campaigns should also disseminate information to all stakeholders about the importance of biodiversity and the need for any use of wildlife to be legal, sustainable, safe and responsible.

33. The updated WHO global strategy for food safety identifies stakeholder engagement and communication on food safety as an essential part of national food safety systems and a priority area for action. Stakeholder engagement – specifically, risk communication – complements and supports regulatory activities, promotes consultation with the agri-food sector and empowers consumers. Furthermore, the strategy aims that all countries have a score of 4 or 5 (the latter is the top mark) in the indicator of multisectoral collaboration mechanism for food safety events, currently monitored under the International Health Regulations (2005).

34. WHO, together with FAO and OIE, has gained considerable experience over the years through collaboration with countries to improve standards of hygiene and sanitation in traditional food markets where live animals are sold. Communication and training programmes aimed at reducing the risk of disease transmission in traditional food markets in a low-cost and sustainable manner and adapted to local contexts have been developed. These are now available for national and local competent authorities to disseminate to market workers and market customers, thereby raising their awareness of the risks associated with handling live wild animals and the measures that can be taken to reduce or mitigate these risks.

FUTURE WORK

35. WHO continues to work with partners from international organizations (FAO, OIE and UNEP) to ensure the alignment of policy recommendations and synergies in the provision of technical support to countries. The development of a global action plan on One Health represents an important step in this direction.

36. WHO has been conducting situation analyses in different markets and exploring options to improve their safety, including infrastructure improvement, advice on regulatory frameworks, and capacity-building of competent authority control staff. Based on this work WHO plans to update the interim guidance. The Regional Office for Europe has published region-specific guidance that not only

¹ WHO. The Global Health Observatory: food safety (IHR 2010–2017) (<https://www.who.int/data/gho/data/indicators/indicator-details/GHO/food-safety>, accessed 18 November 2021).

focuses on reducing risk of transmission of zoonotic diseases in traditional markets but also provides guidance on strengthening the supply of safe and healthy food in traditional markets.¹

37. In the context of an Organization-wide One Health initiative and following the advice from the One Health High Level Expert Panel, the Secretariat will provide support to strengthen surveillance for zoonotic diseases.

38. The Secretariat will also develop an implementation plan for the updated WHO global strategy for food safety to assess and strengthen the capacity of national food systems, particularly in low- and middle-income-countries.

ACTION BY THE EXECUTIVE BOARD

39. The Board is invited to note the report and to consider the following draft decision:

The Executive Board, having considered the report on the reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets – infection prevention and control,² decided to recommend to the Seventy-fifth World Health Assembly the adoption of the following decision:

The Seventy-fifth World Health Assembly, having considered the report on reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets – infection prevention and control,

Decided to request the Director-General:

- (1) 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 in order to answer questions on the scope of the guidelines, including the species that the guidance covers (mammals or mammals plus other species) and farmed or wild live animals;
- (2) to develop plans to support country implementation of the interim guidance on reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets – infection prevention and control; and
- (3) to report back on progress made in updating the interim guidance on reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets – infection prevention and control and the country support plans to the Seventy-seventh World Health Assembly in 2024 and thereafter every two years until 2030 (reports in 2026, 2028 and 2030), in parallel with reporting on the progress in implementing the WHO global strategy on food safety.

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¹ WHO Regional Office for Europe. Safe and healthy food in traditional food markets in the WHO European Region, January 2021. Copenhagen: WHO Regional Office for Europe; 2021. (<https://apps.who.int/iris/bitstream/handle/10665/340954/WHO-EURO-2021-1854-41605-56825-eng.pdf>, accessed 18 November 2021).

² Document EB150/26.