

Addressing Food Safety Risks in the Animal Health Sector

‘From Farm to Fork’ with a One Health approach

Executive Summary

Food is a primary determinant of animal and human health. It is a basic human right to have access to safe, nutritious and healthy food. Preventing, detecting and controlling foodborne hazards of animal origin is important to protect humans from foodborne illnesses and infections [1].

The World Organisation for Animal Health (WOAH) informs policy and decision-making and develops international standards to ensure the safety of food of animal origin. WOAH works with Veterinary Services who, together with other competent authorities, ensure that animal health and food safety standards are met on farms and at slaughterhouses. For example, WOAH supports the capacity of Veterinary Services to conduct inspections on farms and in slaughterhouses. Integrating a One Health approach to risk analysis throughout the food chain ensures that food safety risks can be identified and addressed [1,2].

WOAH actively contributes to the Codex Alimentarius Commission, which publishes a collection of standards, guidelines and codes of practice. The Commission was established in 1963 by the Food and Agriculture Organization of the United Nations (FAO) and the World Health Organization (WHO) to protect consumer health and promote fair practices in food processing. WOAH is the reference organisation for standards relating to animal health and zoonoses in the World Trade Organization’s Agreement on the Application of Sanitary and Phytosanitary Measures (SPS Agreement) [3]. The SPS Agreement facilitates the reduction of hazards at the human–animal–environment interface and enhances transparency of sanitary and phytosanitary measures around the world [4,5].

The Quadripartite Collaboration on [One Health](#), consisting of FAO, WHO, the United Nations Environment Programme (UNEP) and WOAH, developed the [One Health Joint Plan of Action \(2022–2026\)](#) (OH JPA) to integrate systems and capacity to better tackle health threats collectively. Action Track 4 focuses on the assessment, management and communication of food safety risks through a One Health approach. WOAH is advocating for policy alignment of Action Track 4 in the animal health sector.



Insights from Scientific Evidence

Consumption of unsafe food causes **600 million** illnesses and **420,000** human deaths per year [6].

Over **60%** of pathogens that infect people are zoonotic and the most common causes of foodborne diseases in humans are associated with the contamination of foods from animals [2].

Antimicrobial resistance (AMR) can spread to animal products during slaughter or food processing and resistant microbes can infect exposed humans [7].

In low- and middle-income countries, the economic burden of unsafe food is approximately **US\$ 110 billion** yearly [8].

While pesticides are used to increase yields and quality of food and reduce agricultural losses, they can have **negative consequences on terrestrial and aquatic animal health** through contamination of the environment, including soil, feed and water, by chemical hazards [9].

Effects of **climate change** alter the distribution of diseases and vectors, increasing the susceptibility of animals to disease and the number of foodborne pathogens [10].

Climate change induced extreme weather events, such as the flooding of agricultural lands and livestock farms, increase the likelihood of **microbial and chemical contamination** of food and water [10].

Definition of Concepts

Food safety

Assurance that food will not cause adverse health effects to the consumer when it is prepared or eaten according to its intended use [11].

Risk assessment

Evaluation of the likelihood and the biological and economic consequences of entry, establishment and spread of a hazard [13].

Foodborne disease

A disease transmitted through contaminated food (of animal origin, fruits, vegetables or drinking water). Foodborne diseases can occur throughout the whole food chain and result in a broad group of illnesses (e.g. diarrhoea and cancer) [1].

Epidemic

A disease outbreak that spreads quickly and affects one or more populations at the same time in a small geographical area [12].

Food control system

Regulatory action carried out by national, regional or global authorities to safeguard consumers and guarantee that food is wholesome and safe throughout the production, handling, storage, processing and distribution process; that it complies with legal requirements for labelling, food safety and quality, and that it is honest and accurate [12].

Risk analysis

Process composed of hazard identification, risk assessment, risk management and risk communication [13].

Risk communication

Interactive transmission and exchange of information and opinions throughout the risk analysis process, concerning risk, risk-related factors and risk perceptions among risk assessors, risk managers, risk communicators, the public and other parties [13].

Addressing Food Safety Risks during Animal Production through the One Health Approach

The food production system is complex, with many sectors operating from local to global levels. A One Health approach is essential to connect sectors,

approach issues with a comprehensive perspective, and ensure food safety at the human–animal–environment interface (see Figure 1).

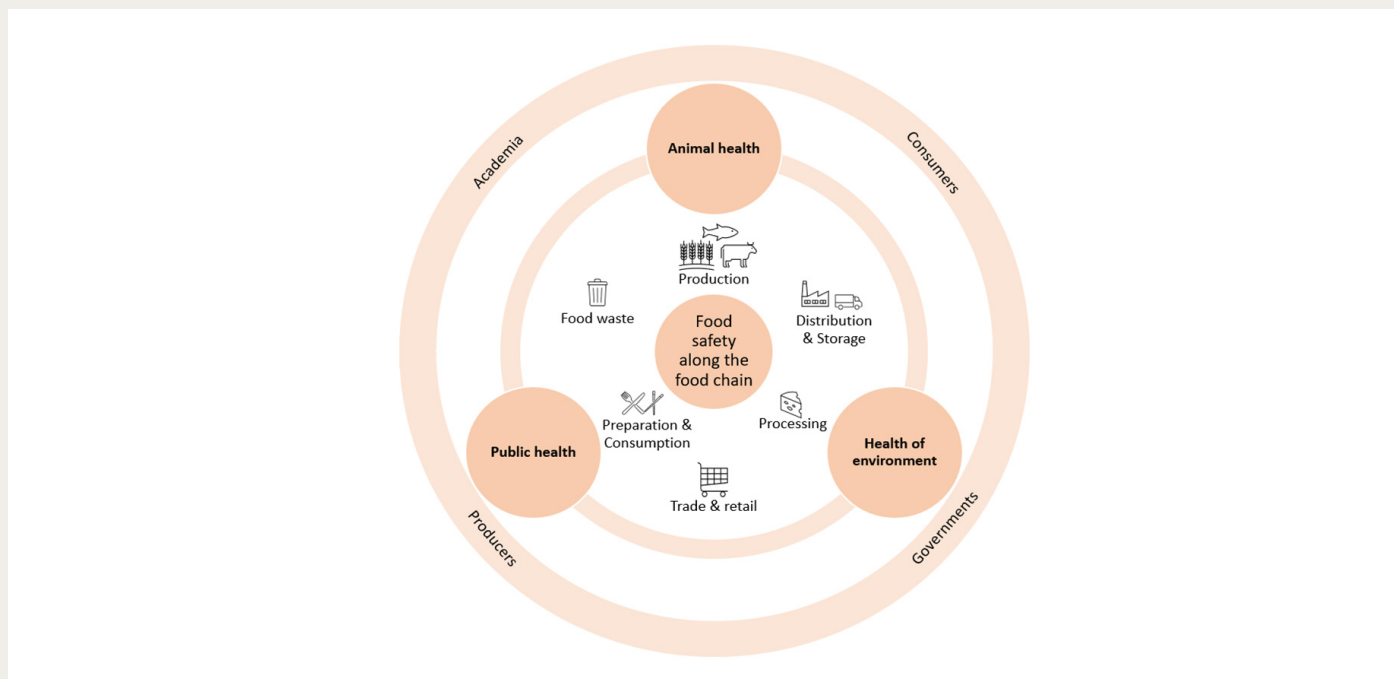


Figure 1: A One Health perspective for food safety along the food chain considering different sectors and actors.

Risks from foods of animal origin can arise anywhere along the food chain – from farm to fork – during animal production, slaughter, processing, storage or distribution, or when handled by the consumer [2]. The From Farm to Fork strategy aims to make each step of the food chain sustainable, fair and healthy (see Figure 2) [14].

Bacteria such as *Salmonella spp.* and *Campylobacter spp.* and parasites such as *Echinococcus spp.* and *Taenia solium* are the most common food-borne pathogens that affect millions of people annually [1]. Chemical hazards such as veterinary drug residues and chemicals (e.g. dioxins, pesticides) or environmental pollutants (heavy metals) can be the source of food-borne diseases [1]. There is also a risk of AMR spread, which must be mitigated by safe food production practices and reduced antimicrobial use during animal production [14].

Unsafe food can cause disease and malnutrition in humans as well as disruptions in the food industry (e.g. during animal production, food processing and retail) [17]. The burden of foodborne diseases is especially high in low- and middle-income countries, as there are challenges regarding the implementation of strategic and cohesive food safety programmes that proactively address problems. This is due to a lack of adequate human resources in veterinary services, lack of information, inaccurate use of available evidence, or poor communication and coordination with relevant governmental actors and stakeholders [18].



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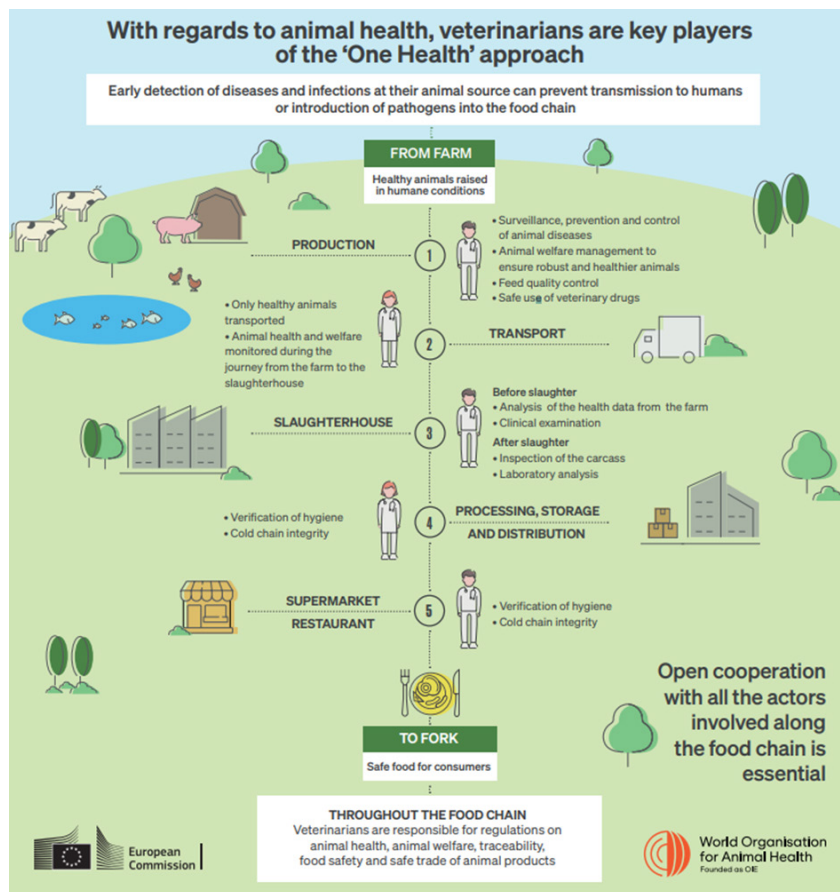


Figure 2: One Health in the food chain: From Farm to Fork [15].



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Veterinary Services are crucial actors within the food production system. They implement animal health and welfare measures, conduct risk assessments, develop policies to manage animal health risks, issue certifications for animal health and food safety criteria for food of animal origin, and facilitate the safe international trade of live animals and animal products based on WOAH international standards. Risk assessments of foodborne diseases of animal origin determine the prevalence, incidence and transmission of risks within the food chain. Following the assessment, actions are carried out, including communication and management to reduce risks of adverse health effects for animals and humans [2]. Implementing food safety risk analysis through risk assessments promotes food safety and can prevent economic losses for food producers, processors and distributors due to reduced access to domestic and export markets [19].

WOAH Contributions to Improving Food Safety through the One Health Approach

Facilitating One Health governance of food safety

WOAH promotes multi-sector food safety systems by encouraging implementation of relevant policies and legislation throughout global, national and local agri-food systems [4]. WOAH **international standards**, implemented by Veterinary Services and other competent authorities, facilitate the detection, management and reduction of risks of foodborne diseases. For example, Veterinary Services conduct ante-mortem and post-mortem inspections at slaughterhouses to ensure the health of animals and the quality of their products, in accordance with the standards. Examples of relevant standards in the WOAH *Terrestrial Animal Health Code* include chapters on biosecurity procedures, animal production and the prevention, detection and control of common foodborne pathogens that cause significant illness in humans, such as *Salmonella spp.*, *Campylobacter spp.* and parasites such as *Echinococcus spp.* and *Taenia solium*. The standards also provide recommendations on the control of hazards in animal feed [13,20].

The **SPS Agreement** encourages the members of the World Trade Organization to base their sanitary measures on WOAH international standards [3].

WOAH actively collaborates with the **Codex Alimentarius Commission** to ensure the development of standards by the two organisations to address hazards throughout the food chain. WOAH and the Codex Alimentarius Commission work together to identify gaps and avoid duplication between WOAH's standards and the Codex Alimentarius Commission.

The Quadripartite Collaboration on One Health developed the **One Health Joint Plan of Action (2022–2026)**. Action Track 4 specifically refers to food safety with a framework to strengthen the assessment, management and communication of food safety risks through a One Health approach [24]. However, all five other action tracks are relevant to food safety (see Figure 3).

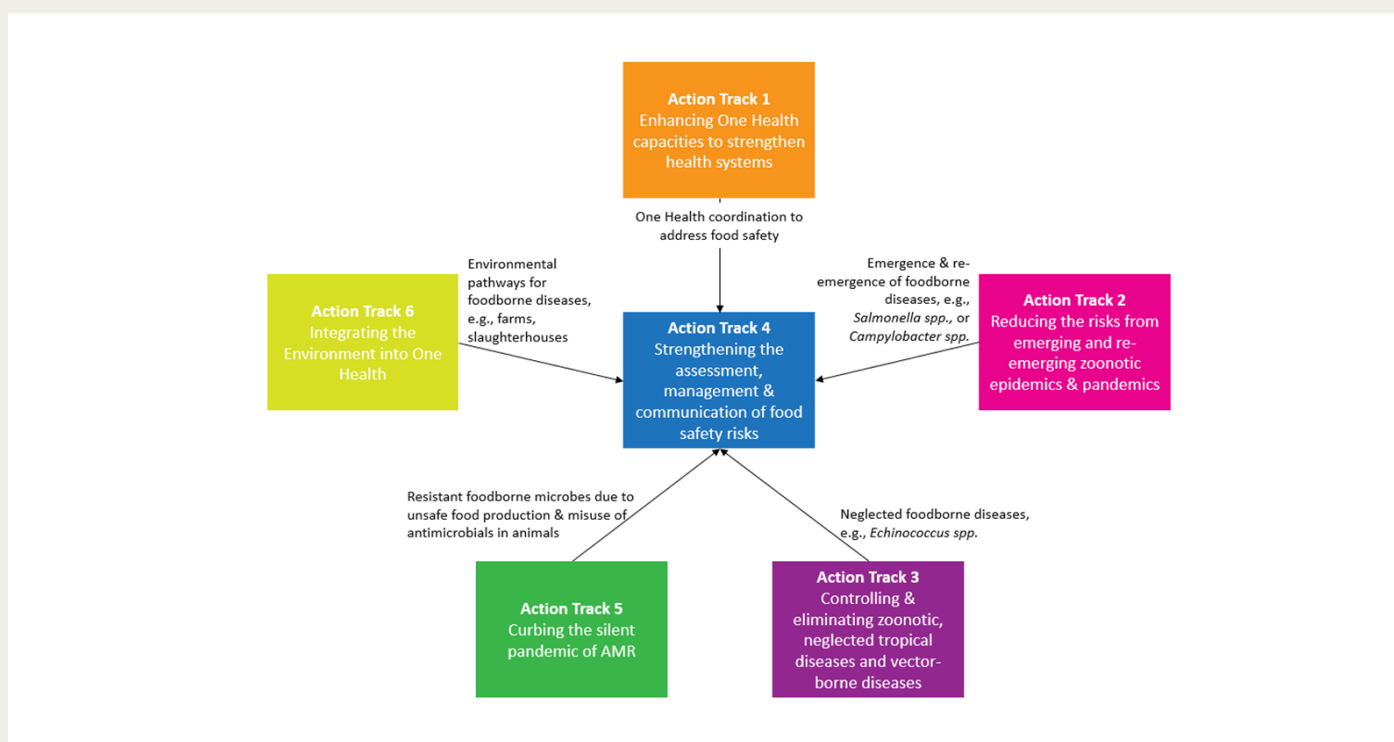


Figure 3: Interrelation of Action Track 4 with other Action Tracks of the One Health Joint Plan of Action (2022–2026).

Information system and surveillance

WOAH provides the interactive mapping tools and dashboards **World Animal Health Information System (WAHIS)** and **WAHIS-Wild Beta**, which present data reported by countries and facilitate access to information on disease outbreaks, including foodborne illnesses [22].

Capacity building and guidance

WOAH provides capacity building of Veterinary Services through the **Performance of Veterinary Services (PVS) Pathway**. Veterinary Services can be responsible for food safety along some parts of the food chain [7]. As such, capacity building of Veterinary Services contributes to the reduction of threats and risk to animal health and public health. This includes training in conducting checks on farms (vaccination, diagnosis, quarantine) and in processing facilities such as slaughterhouses [21].

WOAH also publishes regular guidance to Members, including the interim guidance on **Reducing public health risks associated with the sale of live wild animals of mammalian species in traditional food markets**, which was jointly developed with WHO and UNEP in 2021.

Additionally, the **EBO-SURSY project** implements strategies for the surveillance, prevention and control of zoonotic diseases in ten West and Central African countries, including diseases transmitted by the consumption of wild animals, with the plan to expand to more countries.

The guidance document recommends several actions that national governments should adopt with the aim of making traditional markets safer and recognising their central role in providing food and livelihoods for large populations.

WOAH also works to detect, manage and reduce the risk of AMR within the food chain through international standards, including responsible prescription practices of veterinarians [13].

Its Strategy on Antimicrobial Resistance and the Prudent Use of Antimicrobials

establishes responsible prescription practices of veterinarians, which strengthens food safety by preventing the spread of resistant microbes in animals, the environment and throughout the food chain [23].

Policy Recommendations

WOAH recommends the following policy-based solutions to strengthen the One Health approach and tackle food safety threats within the animal health sector and beyond.

At policy and institutional level:

- Implement relevant WOA Standards and collaborate with national Food Safety Authorities to implement relevant Codex Alimentarius Standards.
- Harmonise standards relevant to food safety developed by WOA and the Codex Alimentarius Commission while taking into

consideration the recommendations of the Quadripartite.

- Promote stronger public–private sector collaboration to develop innovative solutions, enhancing food control systems, strengthening food safety capacity and facilitating food safety dialogues and interventions.
- Provide investments and resources to manage and execute risk management, develop and update food standards, enhance laboratory testing of food, increase inspections and educate value chain employees.

At programmatic level:

- Support meetings and update national food safety legislation based on WOAAH and Codex Alimentarius standards and in the requirements of importing countries.
- Improve coordination on food safety at the national and regional levels between competent authorities, such as veterinary, public health, agricultural and environment institutes as well as other relevant stakeholders.
- Promote national, regional and local cross-sector collaboration of competent authorities responsible for animal health, food safety and public health in line with the One Health approach.
- Support Veterinary Services in ensuring the responsible use of veterinary pharmaceutical products such as antimicrobials.
- Foster and support creation and exchange of scientific knowledge, evidence and technology for food safety in relation to the One Health approach and the Farm to Fork strategy.

At technical level:

- Strengthen Veterinary Services via capacity building activities, with an emphasis on implementation of measures applicable at farm level and throughout different stages of the food chain, in collaboration with national Food Safety Authorities, to decrease the risk of unsafe food.
- Facilitate behaviour change through communication strategies and clear messages for each actor in the food chain.

Recommended WOAAH sources for further information

[One Health](#)

[Quadripartite One Health Joint Plan of Action \(2022–2026\)](#)

[Food Safety](#)

[Food Safety Fact Sheet](#)

[International Standards](#)

[Training Portal for the reinforcement of Veterinary Services worldwide](#)

[World Animal Health Information System \(WAHIS and WAHIS Wild\)](#)

[Performance of Veterinary Services \(PVS\) Pathway](#)

[EBO-SURSY Project](#)

[Wildlife Health Framework](#)

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