



A COMPARATIVE ANALYSIS OF FOOD SAFETY LAWS AND REGULATIONS ACROSS CONTINENTS

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Abstract

This paper provides a review of food safety regulations across all seven continents. Based on a review of Google and two databases (PubMed and Academic Search Complete), the paper summarizes the organizations involved in regulation of food safety and their main approaches. Results indicate that some continents have specialized agencies to oversee food safety across the entirety of continents (e.g., Europe and Africa), while others do not (e.g., North America, South America, Asia, Antarctica). Yet, deaths associated with food contaminants do not correlate with this finding, as deaths tend to be highest in Africa and Southeast Asia.

Keywords

Food Safety, Regulation, Food Harm, Death

Introduction

Foodborne illnesses pose a significant risk to the public (Flint, Van Duynhoven, Angulo, DeLong, Braun, Kirk, Scallan, Fitzgerald, Adak, Sockett, Ellis, Hall, Gargouri, Walke, & Braam, 2005). Given that these illnesses cross borders, they require a global rather than a local focus (Pires, Desta, Mughini-Gras, Mmbaga, Fayemi, Salvador, Gobena, Majowicz, Hald, Hoejskov, Minato, & Devleeschauwer, 2021). Food safety is thus a critical public health concern around the globe.

The international policy environment has been called a “transnational policy space,” suggesting the importance of cooperation across countries (Josling, 2008: 1). Yet, the World Health Organization (2022: 26) only claims that food harm legislation should be “harmonized nationally.” And they claim that: “The structure and objectives of the national food controls should be fully described in legislation, together with the roles and responsibilities of all national, subnational and local competent authorities. The national food controls should include a system for coordination of functions of all the competent authorities across the entire food chain.” A clear absence of focus on international collaboration is missing from this focus.

Global food safety standards are organized around the concept of “hazard analysis.” According to Arouma (2006: 119): “Hazard analysis at critical control points (HACCP), good manufacturing practice (GMP) and good hygiene practice (GHP) are major components of the safety management systems in the food supply chain.” And “‘a hazard’ is a biological, chemical or physical agent in, or condition of, food that has the potential to cause an adverse health effect.” Hazards come in many different forms. For example, there are “many factors responsible for food contamination, including chemical contaminants, such as allergens, histamine, cyanogenic glycosides, mycotoxins, toxic elements, etc., biological contaminants, such as *Campylobacter*, *Brucella*, viruses, *Escherichia coli*, prions, *Staphylococcus aureus*, *Listeria monocytogenes*, protozoa, parasitic pathogens, etc., and physical contaminants, such as bone, glass, metal, personal effects, plastic, stones, wood, etc.” (Awuchi, 2023: np).

Hazard analysis is universally guided by the Codex Alimentarius Commission (CAC), established by the Food and Agriculture Organization (FAO, a specialized agency of the United Nations that leads international efforts to defeat world hunger, improve nutrition, and ensure food security), and the World Health Organization (WHO, the specialized United Nations agency responsible for directing and coordinating international public health). CAC was established in 1963 to develop “harmonized global food standards, guidelines, and codes of practice” (CAC, 2026). CAC is composed of 188 member countries and one member organization (the European Union), representing roughly 99% of the world’s population. CAC has held 21 sessions, and membership has

grown across those meetings (see Figure 1). Yet, continental enforcement and regulation fall to specific regional authorities. This creates a potential gap that can lead to food safety issues.

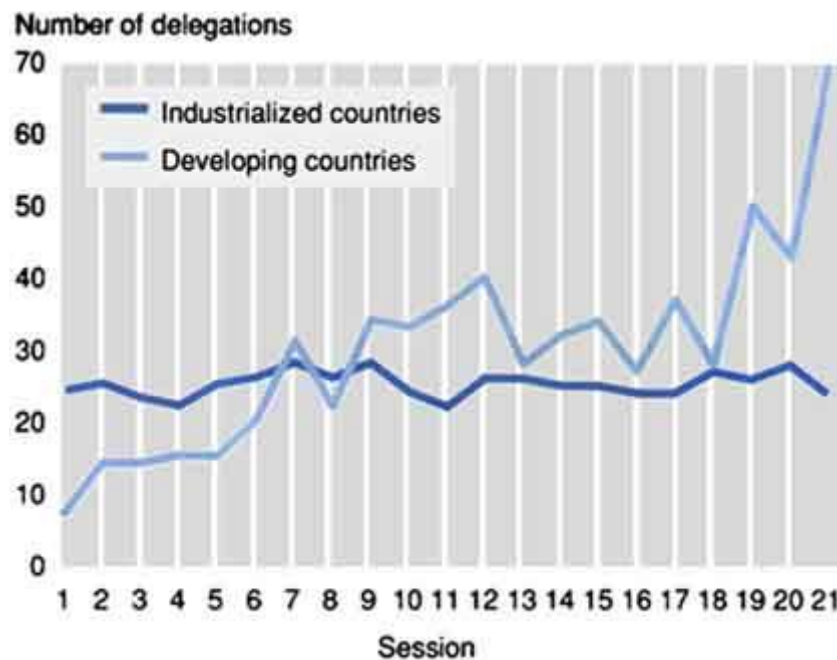


Figure 1

Source: <https://www.fao.org/4/v7700t/v7700t0e.jpg>

According to its website: “The CODEX ALIMENTARIUS international food standards, guidelines and codes of practice contribute to the safety, quality and fairness of this international food trade. Consumers can trust the safety and quality of the food products they buy and importers can trust that the food they ordered will be in accordance with their specifications” (CAC, 2026). What are these standards, guidelines, and codes of practice? According to the website: “The Codex Alimentarius is a collection of internationally adopted food standards and related texts presented in a uniform manner. These food standards and related texts aim at protecting consumers’ health and ensuring fair practices in the food trade.” Continuing: “The publication of the Codex Alimentarius is intended to guide and promote the elaboration and establishment of definitions and requirements for foods to assist in their harmonization and in doing so to facilitate international trade” (CAC, 2026). The website specifies that the Codex Alimentarius “includes standards for all the principal foods, whether processed, semi-processed or raw, for distribution to the consumer ... [as well as] provisions in respect of food hygiene, food additives, residues of pesticides and veterinary drugs, contaminants, labelling and presentation, methods of analysis and sampling, and import and export inspection and certification” (CAC, 2026; also see Fortin, 2023).

Also relevant is ISO 22000, a globally recognized international standard that specifies the requirements for a Food Safety Management System (FSMS), a structured framework of policies, procedures, and controls designed to identify, prevent, and reduce foodborne hazards. ISO 22000 lays out a comprehensive framework to help organizations identify, prevent, and control food safety hazards at every stage of the supply chain (International Organization for Standardization, 2026). ISO2200 is used by food producers, manufacturers, processors, transporters, distributors, and retailers, and involves HACCP principles.

Based on such guidelines, governments establish laws and regulations to ensure that food products are safe for consumption, prevent foodborne illnesses, facilitate international trade, and protect consumer confidence. While all regions share the common objective of safeguarding public health, their regulatory approaches differ based on economic development, legal traditions, agricultural practices, and institutional capacity. This article compares and contrasts food safety laws and regulations in North America, Europe, Asia, Africa, South America, Australia, and even Antarctica, highlighting similarities, differences, strengths, and challenges.

This paper also illustrates the specific agencies responsible for food safety within each continent, and also lays out regulatory approaches within specific countries in each continent for illustrative purposes. Findings illustrate that global food safety standards vary by continent. Some continents have specialized agencies to oversee food safety across the entirety of continents (e.g., Europe and Africa), while others do not (e.g., North America, South America, Asia, Antarctica).

The Nature of Food Harms

In the US alone, according to the US Food and Drug Administration (2026): “About 48 million people in the U.S. (1 in 6) get sick, 128,000 are hospitalized, and 3,000 die each year from foodborne diseases, according to recent data from the Centers for Disease Control and Prevention.” Worldwide, the World Health Organization (WHO) suggests that: “Unsafe food causes 866 million illnesses and 1.5 million deaths annually” (World Health Organization, 2026; also see Lake et al., 2026).

The threat of foodborne diseases (FBD) is not evenly distributed around the world, and appears to be greatest in low- and middle-income countries (LMIC). Grace (2023: 1475) notes that: “The health burden of FBD is comparable with that of malaria, and over 90% falls on people in LMIC, with an economic burden of more than US\$100 million per year.” One scholar adds that: “Africa is the greatest contributor to the burden of foodborne diseases in the world” (Kimanya, 2024: e30230). This is shown in Figure 2.

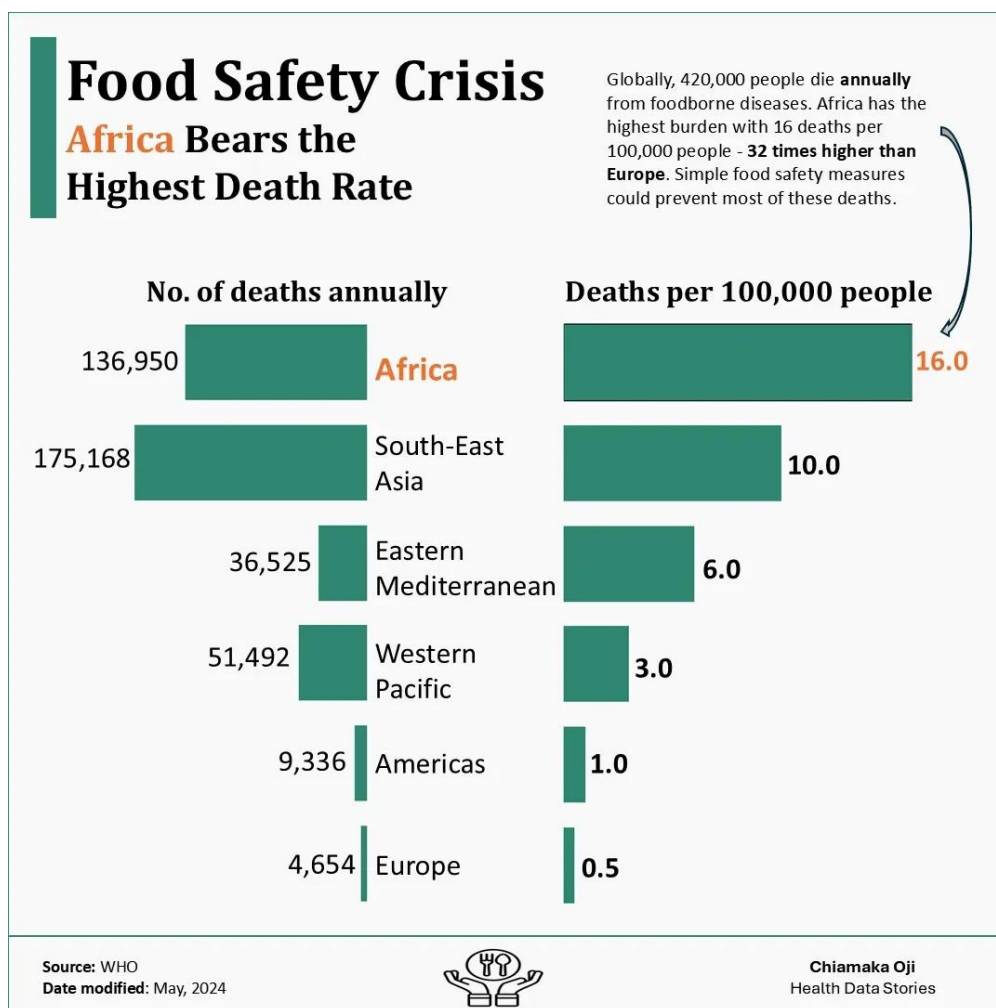


Figure 2

Source: <https://www.fao.org/4/v7700t/v7700t0e.jpg>

Table 1 Estimated Foodborne Deaths by Region

African Region	~ 30% of global deaths (91 million people are estimated to fall ill and 137,000 die each year)
South-East Asia Region	~ 30% of global deaths (150 million people are estimated to fall ill and 175 000 die each year)
Eastern Mediterranean Region	~ 20% of global deaths (100 million people are estimated to fall ill and 37,000 die each year)
Region of the Americas	~ 10% of global deaths (77 million people are estimated to fall ill and 9,000 die each year)
Western Pacific Region	~ 5% - 7% of global deaths (125 million people are estimated to fall ill and 50,000 die each year)
European Region	~ 5% of global deaths (23 million people are estimated to fall ill and 5,000 die each year)

Source: <https://www.who.int/news/item/03-12-2015-who-s-first-ever-global-estimates-of-foodborne-diseases-find-children-under-5-account-for-almost-one-third-of-deaths>

Table 1 also illustrates estimated foodborne deaths by region. As you can see, the largest burden falls on Africa, then southeast Asia, followed by the eastern Mediterranean, Americas, the Western Pacific region, and then the European region.

These data illustrate why food safety is such an important issue of focus. One can also see food safety as a human rights issue. For example, some scholars note that: “Food safety is also specifically recognized as a fundamental individual right in the United Nations Sustainable Development Goals (UN SDGs), whose goal 2.1 is ‘by 2030, to end hunger and ensure access by all people, in particular, of the poor and people in vulnerable situations, including children, to a safe, nutritious environment and sufficient food all year round’” (Sorbo, Pucci, Nobili, Taglieri, Passeri, & Zoani, 2022: 53). The World Health Organization (2022) specifies that: “The SDGs are a call for action by 193 countries to promote prosperity while protecting the planet. They provide a blueprint for achieving a better and more sustainable future for all. The 17 Goals are interconnected and are to be collectively achieved by 2030. Sufficient, safe and nutritious foods are clearly identified as relevant to all SDGs, reaffirming the interdependence between health and well-being, nutrition, food safety and food security.” And they add: “Food safety must be incorporated into the realisation of the SDGs ... especially SDG 2 (Zero hunger), SDG 3 (Good health and well-being) and SDG 8 (Decent work and economic growth).” To the degree food safety relates to human rights, to that same degree it must be taken seriously.

Methodology

This is a review paper of websites and scholarly sources on food safety. The author used Google, as well as two databases (PubMed and Academic Search Complete) to locate journal articles as well as reports, using the search terms “food safety” and “international regulation.” These articles were then read and reviewed for the purposes of discovering the nature and extent of food safety regulations on each continent and in sample countries within. Findings are presented by continent, with examples from specific countries therein.

Findings

The findings begin with an examination of the specific agencies and organizations involved in food safety across the continents, then moves on to specific issues and problems found within each continent. The analysis begins with North America.

North America. There is no single regulatory agency responsible for food safety across the entirety of the continent. Instead, food safety regulations are handled on a country-by-country basis by individual national governments. In the United States, the U.S. Food and Drug Administration (FDA) and U.S. Department of

Agriculture's Food Safety and Inspection Service (FSIS) manage domestic and imported food safety. In Canada, the Canadian Food Inspection Agency (CFIA) oversees all food safety, inspections, and recalls. In Mexico, the Federal Commission for the Protection against Sanitary Risk (COFEPRIS) handles national food safety, quality, and labeling requirements.

South America. In South America, there also is no single regulatory agency responsible for food safety across all of the continent. Food safety is managed at the national level, with each country maintaining its own distinct regulatory bodies (Bledel, 1973; Cervieri, Monsuárez, Urbina, Pérez, & Arimón, 2026). Yet, the Pan American Health Organization (PAHO) assists countries in harmonizing food control systems and veterinary public health.

Then, there are specific agencies within each country. For example, in Brazil, the Agência Nacional de Vigilância Sanitária (Anvisa) oversees processed food and health products. In Argentina, the Desde el Servicio Nacional de Sanidad y Calidad Agroalimentaria (SENASA) regulates agricultural health and food quality. In Chile, food safety is overseen by the Chilean Food Safety and Quality Agency (ACHIPIA).

Asia. There is also no single regulatory agency responsible for food safety across all of Asia. Food safety is managed by individual countries, though regional networks exist to coordinate standards (Hoejskov, 2016; Westhoff, 2016).

Countries in Asia obviously have organizations devoted to food safety. For example, in China, the China National Center for Food Safety Risk Assessment (CFSA) handles risk assessments and sets national food standards. The General Administration of Customs of China (AQSIQ) is also involved in issues of food safety. In Hong Kong, the Centre for Food Safety (CFS), located in the Food and Environmental Hygiene Department (FEHD), was established to ensure safety in food products there. In Japan, the Ministry of Health, Labour and Welfare (MHLW) and the Consumer Affairs Agency (CAA) manage food safety. In Singapore, the Singapore Food Agency (SFA) oversees food safety from farm to table. In South Korea, the Ministry of Food and Drug Safety (MFDS) handles both food and pharmaceuticals. In Vietnam, the Vietnam Food Administration (VFA), working under the Ministry of Health, implements food safety regulations. In Malaysia, the Food Safety and Quality Division (FSQD), an agency under the Ministry of Health Malaysia, regulates domestic and imported foods. Thailand and the Philippines each have their own Food and Drug Administration (FDA) to monitor food and drug products in the countries. In India, the Food Safety and Standards Authority of India (FSSAI) lays down science-based standards for articles of food. In Indonesia, the National Agency of Drug and Food Control (BPOM) an agency under the Ministry of Health, oversees food safety. Finally, the Federal Service for Veterinary and Phytosanitary Surveillance of the Russian Federation, which operates under the Ministry of Agriculture, is responsible for inspection of all agricultural products, animal-derived goods, and processed foods.

To bridge the gap between these separate agencies, regional coalitions like ASEAN (Association of Southeast Asian Nations) harmonize guidelines across member states. Additionally, networks such as the Food Safety Asia Network share laboratory analysis expertise across the region.

Oceania. No single regulatory agency is responsible for food safety across the entirety of Oceania. Instead, food safety is managed by individual nations through their own distinct government departments, though Australia and New Zealand share a coordinated system. An example of a regulatory agency in Oceania is the Food Standards Australia New Zealand (FSANZ), which develops standards for food safety, labeling, and contamination that are enforced locally. FSANZ creates food standards and the Australia New Zealand Food Standards Code. While

FSANZ develops these standards, implementation and enforcement are managed locally by the Australian Government Department of Agriculture, Fisheries and Forestry, individual Australian state/territory agencies, and the New Zealand Ministry for Primary Industries. There are also country-specific agencies working on food safety, including the Department of Agriculture, Fisheries, and Forestry in Australia and the Ministry for Primary Industries (MPI) in New Zealand.

Then, countries like Fiji, Samoa, Tonga, and Papua New Guinea each have their own national health or agriculture ministries that oversee food safety. These nations often rely on guidelines from the FAO and WHO to help shape their local laws.

Antarctica. There is also no single, continent-wide food safety organization in Antarctica, but this is likely not surprising given that the continent has no indigenous population or permanent government. Food safety is managed by individual national science programs such as the U.S. National Science Foundation and international operating bodies. Stations and vessels there adhere to strict, localized safety and biosecurity protocols. Roughly 30 countries are involved in Antarctica, all of which are parties of the 1959 Antarctic Treaty System, and they hold permanent or summer-only scientific research stations there. Seven countries have territorial claims in the continent—France (Adélie Land), United Kingdom (British Antarctic Territory), New Zealand (Ross Dependency), Norway (Peter I Island and Queen Maud Land), Australia (Australian Antarctic Territory), Chile (Chilean Antarctic Territory), and Argentina (Argentine Antarctica) (World Population Review, 2026).

Operations like the U.S. Antarctic Program (USAP) utilize partner entities such as military veterinary food safety officers to conduct independent inspections of the food supply chain, storage facilities, and cooking areas.

Health and safety guidelines are heavily influenced by associations like the Council of Managers of National Antarctic Programs (COMNAM) and the Antarctic Treaty System itself. Finally, tour operators and expedition cruises align with guidelines established by the International Association of Antarctica Tour Operators (IAATO), which enforces strict biosecurity and environmental waste protocols.

Europe. Moving on to continents where there is a unified agency responsible for food safety, in Europe, the European Food Safety Authority (EFSA) is the primary regulatory agency responsible for food safety risk assessment across the European Union (Caduff & Bernauer, 2006; Pettoello-Mantovani & Olivieri, 2022; Sorbo, Pucci, Nobili, Taglieri, Passeri, & Zoani, 2022). EFSA provides independent scientific advice and risk assessments to the European Union and member states. The European Commission drafts the actual food laws and policies.

An example within a specific country comes from the United Kingdom, where the Food Standards Agency (FSA) regulates food safety standards across England, Wales, and Northern Ireland. Then, in the Netherlands, the Food and Consumer Product Safety Authority (NVWA) is responsible for managing the safety, hygiene, and quality of food, animals, plants, and consumer goods. In Germany, the Federal Office of Consumer Protection and Food Safety (BVL), an agency under the Federal Ministry of Food and Agriculture (BMELH), regulates food safety, including imported goods. In Italy, the primary regulatory authority responsible for food safety is the Ministry of Health (Ministero della Salute), working along with the Ministry of Agriculture (MIPAAF) and supported by several specialized agencies and localized enforcement bodies involved in food safety, risk assessment, and fraud prevention. In Greece, the primary regulatory agency responsible for food safety and consumer protection is the Hellenic Food Authority (EFET or EΦET). It is supervised by the Ministry of Rural Development and Food, and it is charged with ensuring that all food produced, distributed, or marketed in Greece meets national and European Union (EU) standards.

Africa. The African Union Commission established the Africa Food Safety Agency (AfFSA) to serve as a centralized, continental authority. The African Food Safety Network (AFoSaN) unites food control institutions and laboratories to strengthen regional standards. AfFSA is a centralized, continental regulatory institution established by the African Union. In contrast, AFoSaN is a collaborative, grassroots-level coalition of testing laboratories, researchers, and food inspectors.

Specific countries also have their own regulatory apparatuses. For example, in Nigeria, the National Agency for Food and Drug Administration and Control (NAFDAC) regulates food, drugs, and chemicals. In South Africa, the National Regulator for Compulsory Specifications (NRCS) oversees food and related safety regulations.

The Nature of Regulation Across Continents. In North America, particularly the United States and Canada, food safety regulations are highly developed and science-based. In the United States, the Food and Drug Administration (FDA) and the United States Department of Agriculture (USDA) oversee food safety. The Food Safety Modernization Act (FSMA) of 2011 shifted the regulatory focus from responding to contamination incidents to preventing them (US Food and Drug Administration, 2026a). FDA (2026a) reports: “Congress enacted FSMA in response to dramatic changes in the global food system and in our understanding of foodborne illness and its consequences, including the realization that preventable foodborne illness is both a significant public health problem and a threat to the economic well-being of the food system.” An example of a rule that is part of FSMA deals with human food and it “requires food facilities to have a food safety plan in place that includes an analysis of hazards and risk-based preventive controls to minimize or prevent the identified hazards” (FDA, 2026b).

Canada follows a similar preventive approach through the Safe Food for Canadians Regulations (SFCR), administered by the Canadian Food Inspection Agency (CFIA). These regulations require food businesses to

implement preventive control plans and maintain traceability systems. According to the Government of Canada (2026), SFCR consolidates 14 sets of existing food regulations into a single set of regulations, laying out requirements for food producers including to ensure that prepared food is safe and meets the regulatory requirements and labelled and advertised in appropriate and non-fraudulent ways.

A key characteristic of North American food safety systems is their reliance on risk assessment, preventive controls, inspection programs, and strong enforcement mechanisms. Food producers are expected to identify hazards and implement controls throughout the supply chain. Given the relatively small number of food deaths caused by contaminants within North America, one could argue that the system there is highly effective. Food recalls are a regular feature of life in North America, and this is another sign that the system is generally working.

In Europe, one of the world’s most comprehensive food safety frameworks is maintained. The European Union (EU) applies a harmonized system across member states through regulations enforced by national authorities and coordinated by the European Commission and the European Food Safety Authority (EFSA). According to the European Commission (2026a), its Integrated Food Safety policy involves various actions, including:

- “to effect control systems and evaluate compliance with EU standards in the food safety and quality, animal health, animal welfare, animal nutrition and plant health sectors within the EU and in non-EU countries in relation to their exports to the EU;

- to manage international relations with non-EU countries and international organisations concerning food safety, animal health, animal welfare, animal nutrition and plant health; and
- to manage relations with the European Food Safety Authority (EFSA) and ensure science-based risk management.”

According to the European Commission (2026b): “Health protection is the aim of all EU laws and standards in the agriculture, animal husbandry and food production sectors. An extensive body of EU-wide law covers the entire food production and processing chain within the EU, as well as imported and exported goods.” And food safety is governed by Articles 168 (public health) and 169 (consumer protection) of the Treaty on the Functioning of the European Union (European Union, 2026).

The EU’s General Food Law Regulation established the principle that food safety responsibility rests primarily with food business operators. The region emphasizes traceability, allowing authorities to track food products throughout the supply chain. Europe also applies the “precautionary principle,” which permits regulatory action when scientific evidence regarding a potential risk is uncertain; it allows regulators to restrict, ban, or withdraw food products from the market when there is scientific uncertainty regarding their safety. It acts as a risk management tool prioritizing public health over economic interests, ensuring preventive action is taken before definitive proof of harm is established. What seems to matter is potential for harm, whether that harm has been proven or not. Yet, any restrictions implemented under this principle must be temporary, non-discriminatory, and proportionate, and they are designed to be reviewed as soon as more comprehensive scientific data becomes available. The way the process works is like this: EFSA conducts rigorous risk assessments, and if it identifies reasonable grounds for concern but concludes that data is inconclusive, the precautionary principle gives risk managers the authority to act to protect consumers.

Compared with North America, Europe generally adopts a more precautionary regulatory philosophy. For example, the EU often imposes stricter restrictions on food additives, pesticides, genetically modified organisms (GMOs), and certain chemical substances than the United States. As an example, EU restricts numerous additives that are widely permitted in the US, such as titanium dioxide (a white mineral used as a pigment), potassium bromate (a chemical additive used in the baking industry as a dough conditioner and maturing agent to strengthen dough, improve texture, and increase bread volume, but that is recognized as a possible carcinogen), and azodicarbonamide (a synthetic industrial chemical primarily used as a blowing agent in foamed plastics and rubbers, but that is used in the food industry as a dough conditioner and flour-bleaching agent, in spite of possibly being carcinogenic).

Deaths due to food contaminants are even rarer in Europe than in North America. This is strong evidence that their more precautionary efforts are largely working.

Asia presents significant diversity in food safety regulation due to varying levels of economic development and governance structures. Countries such as Japan, Singapore, and South Korea maintain highly sophisticated regulatory systems comparable to those of North America and Europe. Yet, Southeast Asia shows significant problems with deaths associated with food.

Japan’s Food Sanitation Act establishes strict standards for food manufacturing, labeling, and import controls. Singapore’s food safety framework emphasizes rigorous inspections and strong border controls due to its

dependence on food imports. China has significantly strengthened its Food Safety Law following several high-profile food contamination incidents, increasing penalties and oversight responsibilities. However, many developing Asian nations face challenges including fragmented regulatory systems, limited inspection resources, informal food markets, and inconsistent enforcement. As a result, food safety standards and implementation vary considerably across the continent.

Public health concerns in parts of Asia include:

- Food adulteration and fraud;
- Contamination from industrial pollutants;
- Poor sanitation during food preparation and distribution; and
- Limited access to food safety education.

Such problems are more common in countries such as China. Large population sizes, like in China, can also amplify the impact of foodborne outbreaks, affecting thousands of individuals if contaminated products enter major supply chains. Still, deaths from food contamination are generally low in Asia compared with the rest of the world, with the exception of Southeast Asia, as noted above.

In Africa, food safety regulation is characterized by a mixture of national laws, regional initiatives, and international standards. Many African countries rely on guidelines developed by the Codex Alimentarius Commission, which provides internationally recognized food safety standards. Yet, one scholar claims that: “Africa’s national food control systems are based on fragmented legislation which provide for multiple

jurisdictions resulting in weaknesses in coordination, inspection and enforcement of food safety measures mandated to different sectors such as agriculture, trade, and health” (Kimanya, 2024: e30230).

Countries such as South Africa have relatively advanced food safety systems with detailed regulations governing food production, labeling, and inspection. However, many other African nations face challenges related to limited infrastructure, insufficient laboratory capacity, inadequate funding, and shortages of trained inspectors.

A significant issue in Africa is the prevalence of informal food markets, which can be difficult to regulate effectively. Food safety concerns often include microbial contamination, poor sanitation, pesticide residues, and mycotoxins in staple crops. Regional organizations increasingly seek to harmonize standards to improve both public health and trade opportunities.

The relationship between food safety and public health is especially significant in many African countries. Limited regulatory resources, inadequate infrastructure, and insufficient laboratory capacity can make monitoring difficult. In addition, food safety challenges often overlap with broader public health issues such as poverty, malnutrition, and limited access to healthcare.

Common public health impacts in Africa include:

- Higher rates of diarrheal diseases caused by contaminated food and water;
- Exposure to naturally occurring toxins such as aflatoxins in grains and nuts; and
- Increased vulnerability among children, pregnant women, and immunocompromised individuals.

Because foodborne illnesses may be underreported, the actual public health burden may be greater than official statistics suggest. Still, as shown earlier, deaths attributable to food problems are very high in Africa.

South American countries have strengthened food safety frameworks in recent decades, partly to support agricultural exports and participation in global markets. Major economies such as Brazil, Argentina, and Chile maintain comprehensive regulatory systems that oversee food production, processing, and export activities.

Brazil’s National Health Surveillance Agency (ANVISA) plays a central role in food safety regulation, while Argentina’s National Food Safety and Quality Service (SENASA) oversees food inspection and agricultural products. In Chile, food regulation is split between two main competent authorities: the Ministry of Health (MINSAL), which oversees food safety and processed foods, and the Ministry of Agriculture, which regulates agricultural products and livestock.

Many South American countries align their regulations with international standards established by Codex Alimentarius. Despite these advancements, challenges remain in ensuring consistent enforcement across rural areas and smaller producers. Economic disparities and resource limitations can affect regulatory effectiveness, particularly in remote regions.

Many South American countries maintain strong food safety controls for export industries because international markets require compliance with rigorous standards. However, public health challenges can arise when domestic food safety enforcement varies between urban and rural regions.

Consequences may include:

- Uneven protection of consumers across different geographic areas;
- Greater risks among small-scale producers lacking resources for compliance; and
- Regional disparities in inspection and monitoring capacity.

Nevertheless, improvements in food safety systems have contributed to reductions in foodborne disease and increased consumer protection in several countries.

Australia is widely recognized for its robust food safety system (Ghosh, 2014; Lindley, 2022; Martin, Dean, Hardy, Johnson, Jolly, Matthews, McKay, Souness, & Williams, 2003). In Australia, the “national food safety regulatory system consists of: nationally consistent Food Acts; mandatory standards for food safety practices and food premises and equipment; a ‘model’ standard for ‘food safety programs’ and supporting infrastructure projects to assist with its implementation” (Martin, Dean, Hardy, Johnson, Jolly, Matthews, McKay, Souness, & Williams, 2003: 429).

Food Standards Australia New Zealand (FSANZ) develops food standards that are implemented by state, territory, and local authorities in Australia and by New Zealand authorities. Australian food safety regulations emphasize risk-based management, hazard analysis, traceability, and preventive controls. The country maintains strict import controls and biosecurity measures designed to prevent the introduction of foodborne hazards and agricultural diseases.

Australia’s regulatory approach resembles those of North America and Europe in its scientific basis and strong enforcement capabilities. However, Australia’s unique geographic isolation has led to particularly stringent biosecurity policies that exceed those found in many other regions. This may be why food deaths are relatively low in Australia.

Similarities Across Regions

Despite differences in implementation, several common themes emerge across all continents:

- Protection of public health remains the primary objective of food safety laws;
- Risk assessment and hazard management increasingly guide regulatory decisions;
- Traceability systems are becoming more common to facilitate recalls and outbreak investigations;
- International standards, particularly those developed by Codex Alimentarius, influence national regulations; and
- Food business operators are generally responsible for maintaining food safety within their operations.

These similarities reflect growing globalization of food trade and increasing international cooperation on food safety issues. Globalization of the food system as well as climate change pose challenges for each continent and for specific countries within.

Key Differences

Several important differences distinguish regional food safety systems:

- Regulatory philosophy: Europe often applies the precautionary principle more aggressively than North America;
- Enforcement capacity: Developed regions such as North America, Europe, and Australia generally have stronger inspection and laboratory systems than many parts of Africa and developing Asia;
- Harmonization: The European Union maintains highly unified standards across multiple countries, whereas Asia and Africa exhibit greater regulatory diversity;
- Resource availability: Wealthier regions possess greater financial and technical resources for monitoring, testing, and enforcement; and
- Biosecurity emphasis: Australia places exceptional emphasis on preventing the introduction of foreign pests and diseases.

Research suggests that stronger regulatory systems assure better public health outcomes. In North America, Europe, and Australia, comprehensive food safety laws contribute to lower rates of serious foodborne outbreaks and faster responses when contamination occurs. Advanced surveillance systems, laboratory testing, traceability requirements, and mandatory reporting allow authorities to identify sources of contamination quickly and remove unsafe products from the market. For example:

- Strict inspection programs reduce the likelihood of contaminated food reaching consumers;
- Traceability systems enable rapid recalls of unsafe products; and
- Preventive regulations require businesses to identify and control risks before contamination occurs.

As a result, although foodborne illnesses still occur, outbreaks are often detected earlier and affect fewer people than they might in regions with weaker oversight.

Conclusion

Food safety laws and regulations around the world share the common goal of protecting consumers from foodborne hazards, yet they differ significantly in structure, enforcement, and regulatory philosophy. North America, Europe, and Australia generally operate highly developed, science-based systems with strong enforcement mechanisms. Asia demonstrates substantial variation, ranging from advanced regulatory frameworks to developing systems facing implementation challenges. Africa and South America continue to strengthen food safety governance while addressing resource and infrastructure constraints. As global food supply chains become increasingly interconnected, international cooperation, regulatory harmonization, and capacity building will remain essential for improving food safety worldwide.

The differences in food safety laws and regulations have a direct impact on public health because they influence how effectively countries can prevent, detect, and respond to foodborne hazards. While every continent faces risks from contaminated food, the strength of regulatory systems often determines the frequency and severity of foodborne illness outbreaks.

A major factor connecting food safety regulation and public health is economic development. Wealthier countries generally have:

- More inspectors and laboratories;
- Better disease surveillance systems;
- More advanced food-processing technologies; and
- Greater public awareness of food safety practices.

These resources improve the ability to prevent contamination and manage outbreaks. In contrast, lower-income countries may face competing public health priorities, making comprehensive food safety enforcement more difficult.

The differences in food safety laws and regulations are closely linked to public health outcomes across continents. Regions with stronger regulatory frameworks, better enforcement, and greater resources generally experience fewer severe foodborne disease outbreaks and can respond more effectively when problems occur. In contrast, regions facing regulatory, economic, or infrastructure challenges often carry a higher burden of foodborne illness. As food systems become increasingly globalized, improving food safety standards worldwide is not only a local public health issue but also a global one.

Modern food supply chains connect all continents. A contaminated food product can cross borders rapidly, meaning weaknesses in one region's food safety system can affect public health elsewhere. This has increased the importance of international cooperation through organizations such as the World Health Organization and the Codex Alimentarius Commission.

Global food safety standards help:

- Reduce international disease transmission;
- Improve trade safety;
- Promote consistent consumer protection; and
- Strengthen outbreak detection and response.

One hopes that such analyses as this one will assist countries to develop more robust food safety programs like those found in continents and countries that do it best. Poorer nations will require assistance to accomplish this, and wealthier countries can assist them in their endeavors through both gifts and loans.

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