

Inconsistent terminology in food safety field: a permanent risk factor?

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Summary

Food safety understanding is a concept, which begins with technologies and goes all the way to the legislation, from producer to consumer and it is very important that each single link in the food chain is able to communicate with each other. The aim of this study was to analyse terms connected to “food safety” in the period from 1969 to 2008 in major on-line databases for the field, namely, “PubMed” and “Food Science and Technology Abstracts” (FSTA), using qualitative content-analysis as a methodological tool. Main results revealed inconsistent use of “food safety” terminology in the food safety field. It has been shown that professionals do not speak the same language. With regard to global food safety in the food supply chain, this paper points to the need for uniformed terminology, because inconsistent terminology is deceptive and can be one of the risk factors at professional and scientific levels. With an intention to unify the terminology, we expose two influencing categories with seven subcategories, which create the basis of Code of Good Practices and defined food supply chain terminology.

Keywords

food safety; good practice; terminology; qualitative content analysis

Food is essential to life, but if contaminated it can cause illness and even death. Due to recent food crisis, consumer concern about treats associated with food is growing worldwide. With important changes in lifestyles and demography and with globalization in the food trade, we see the food supply growing ever rapidly in size and diversity [1]. Food safety understanding is a concept, which begins with technologies and goes all the way to the legislation, from producer to consumer [2]. Today we ensure “farm to fork” food safety through Hazard Analysis Critical Control Point (HACCP) system and its supporting programmes (prerequisite programmes or good practices) from producer to consumer through entire food supply chain [3]. Food safety is one of the highest priorities of public health at national, community and international level. In order to achieve food safety for consumers, industry and government regulatory sectors have to follow recommendations of the United Nations Codex Alimentarius Commission (CAC) by implementing appropriate quality assurance systems, HACCP system, risk management programmes and ensuring that the world’s food

supply is sound, wholesome, free from adulteration and correctly labelled [4–6].

Good practices are described in several different Codes of Good Practice designed by producers’ organizations, importers and retailers’ consortia, as well as government bodies representing consumers [7]. They define the production, processing, manufacturing, transport and storage practices for individual foods or groups of foods that are considered essential to ensure the safety and suitability of food for consumption [8]. Codex Alimentarius codes of practice is a collection of internationally adopted food standards presented in a uniform manner. The first Codex code of practice was adopted in 1969 and was representing a firm foundation for ensuring food hygiene.

The majority of microbial food-borne illnesses are thought to be preventable if food safety principles are understood and practiced throughout the entire food chain from production to consumption [9]. Despite the efforts of food safety information campaigns and educational efforts, food remains a prevalent vehicle of disease [10]. Baş and co-workers [11] found out that complicated

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terminology is one of the most common barriers to ensure food safety in food businesses.

Despite the agreed terminology by Food and Agriculture Organization (FAO), World Health Organization (WHO), EU regulation and Codex Alimentarius, a lack of clarity in terminology connected with food safety can be noticed in various scientific and professional articles, which is very confusing for understanding and application in further use. JEVSNIK and co-workers [12] reported that authors of scientific and technical papers use many different terms for similar barriers to successful HACCP and its supporting programmes implementation, which complicates their ranking and further systematic handling. We were motivated by doubts about the inconsistent use of food safety terminology in the food safety field and consequently we conducted a qualitative content analysis of selected documents covering this particular topic from various aspects.

Time scarcity, the feeling of not having enough time, has been implicated in changes in food consumption patterns such as decrease in food preparation at home, an increase in the consumption of fast food, a decrease in family meals, increase in the consumption of convenience or ready-prepared foods on one side, and both trends in the global food production and concern for health on the other side, such as preference for fresh and minimally-processed foods and the increasingly longer period between processing and consumption of foods [13, 14]. Institutionalizing children in schools and childcare facilities, a growing number of elderly persons in hospitals and nursing homes, and eating outside one's home means that food for many is prepared by a few and can therefore be a source of major food-borne disease outbreaks [15, 16].

In spite of all preventive programmes against food-borne diseases in the food supply chain and in spite of all invested efforts, the number of food-borne diseases is raising and killing approximately 2.2 million people annually [17]. Food-borne diseases not only significantly affect people's health and well-being, but they also have economic consequences for individuals, families, communities, business and countries. Not only that bacterial infections are a problem [3, 18], but lately enteric viruses have been increasingly recognized as important cause of food-borne disease, because of the increasing consumption of shellfish, ready-to-eat foods, and raw and/or minimally processed fruits and vegetables. FAO/WHO reported [19] that food-borne viral infections are very common in many parts of the world despite the measures already in place to reduce bacterial contamination

through the use of tools such as HACCP. In Europe, viral agents were responsible for 13.1% of the food-borne outbreaks in 2008 and were identified as the second most common causative agent, after *Salmonella* [20]. The reason is that products are often imported from areas lacking strict hygienic measures, they are often eaten uncooked, and they often come to contact with potentially contaminated water, ice, human hands and surfaces from "farm-to-table" continuum [19].

The main purpose of all good practices in the food safety circle is to provide consumers with safe, healthy and quality food. RASPOR and JEVSNIK [3] described basic good practices in food supply chain and suggested that, for solving the existing barriers, it is necessary to link-up all relevant good practices "from farm to the table" to one practice named Good Nutrition Practice, which also involves consumer, because the studies in the last years highlighted gaps in food safety knowledge and some critical safety violations regarding food handling at home [21–24].

Safe food handling is important anywhere along the food chain. Therefore the consistent terminology is essential for conveying accurate information. Codex Alimentarius and other international groups have tried to codify the terminology, yet observations indicate inconsistencies that impair accurate communication. Thus this study investigated how prevalent the inconsistencies are.

The aim of this study is to analyse the food safety terminology in the last decades, and to detect possible interactions among the identified and analysed terms and their application in both scientific and professional literature. In the field, there is neither clearly defined food safety terminology concept, nor its use in the professional and scientific work. The latter evolution of the language and different kind of terminology concepts is arising, which are not unambiguous anymore, and this leads to misinterpretation and consequently to incorrect activities in the food safety arena. In this study, we want to show the potential conflict points in the food safety assurance, which are not caused by incorrect activities, but rather by misunderstanding of the food safety terms in the scientific and technical literature.

METHODS

The research method of qualitative content analysis was used to collect and analyse the selected studies dealing with food safety. Content analysis is a research method that has come into wide use in health studies in recent years, and is

a set of qualitative and quantitative methods for collecting and analysing data from verbal, print or electronic communications with numerous applications [25]. Bernard BERELSON [26] defined content analysis as “a researcher technique for the objective, systematic and quantitative description of manifest content of communication”. Content analysis has much strength, including the abilities to use retrospective data and to track changes over time, and lower costs compared to other methods of research. As with any research method, it has got limitations, too. These include limits to the inferences drawn, the inability to access causality and the labour-intensive nature of the research [25].

Food Science and Technology Abstracts (FSTA; IFIS, Reading, United Kingdom) thesaurus is a search aid for users of FSTA in all its forms (electronic and printed version) and in this study, it was used as searching code for both used online databases for the field. Studies were selected by defined descriptor and keywords searching. FSTA Thesaurus 2004 [27] defines descriptor as a term currently used in indexing key points of the documents in an information retrieval system. Keyword is a main or often repeated word (usually a noun) that is closely linked to, or describes/defines, a particular subject [28]. Documents were selected in two separated parts. First descriptor “food safety” was used to get familiar with studies dealing with food safety. Studies were selected in a specialized data collection for the field, named “PubMed” (U.S. National Centre for Biotechnology Information; U.S. National Library of Medicine; National Institutes of Health, Bethesda, USA) and FSTA from the period from 1969 to 2008. We chose these two databases due to their high respect and tradition in food, nutrition and health area. During last decades, their reliability has been proven as leading databases in the field. Using this approach, more than 56000 studies were obtained and further selection was needed. In the second part, the search pool was narrowed by using keywords “food safety and good practice*”, which allocated 2294 appropriate studies. Keyword searching had to be chosen because there is no existing descriptor for “good practice*” in FSTA Thesaurus 2004. Because of the comprehension of the obtained data, content of selected studies was further evaluated on the basis of total subject in the abstracts.

Criteria for exclusion were defined to eliminate unsuitable documentation sources from further analysis. The chosen sources were selected on the basis of prerequisites that the abstracts were published in English, published between years 1969, when the first Codex codes were published, and

2008. Criteria for selection of abstracts according to their content included citation of synonyms for terms connected to “food safety” and “good practice*”. Because of inconsistent use of the terms “good practice” or “good practices”, we used unlimited truncation, which retrieves all possible suffix variations of the root word indicated. There are different truncation characters in different databases. In database FSTA, the truncation character is \$ and in database PubMed it is *. In order to have better and easier overview, we use truncation character * in this study. All abstracts obtained in this way were analysed comprehensively and their keywords were determined. The determination of each keyword was performed after multiple examinations of selected abstracts in consensus among all co-authors. Authors received their trainings through their practice in the food safety field as well as from additional trainings in social sciences. Besides that, they also track novelties in the food safety field, which more and more consider qualitative methods. At first step, clustering of identified keywords into groups was performed. Determined keywords were sorted into thirty groups, named elements. In the second step, classification of elements to make subcategories and categories was conducted. Elements were further sorted into seven subcategories named “hazards”, “food hygiene”, “epidemiology”, “consumers”, “regulations”, “food law” and “education and training”. Subcategories were once more sorted into two main categories named “causative agents” and “tools”. With this classification of determined keywords and its interlinking, we tried to create the basis of Code of Good Practice, which is a fundament of any quality assurance programme.

RESULTS AND DISCUSSION

The history of food safety is probably nearly as old as human history itself. Synonymously with food hygiene, it embraces anything in the processing, preparation or handling of food to ensure it is safe to eat. It may have started with the recognition and subsequent avoidance of foods that were naturally toxic [29]. Nowadays, we master food safety at different levels of food production, distribution and consumption with different good practices which are the consequence of human culture, history and lifestyle [7].

Based on results of the analysed 2294 abstracts, we were able to clarify some observations. Analysis of the term “food safety” over the last century can be illustrated in three evolution periods. At the beginning of last century, food

safety meant nutritional insurance and prevention of food adulteration [30]. In the industrial age, food safety regarded problems arisen in large part of the technological progress in food production with new equipment such as cleaners, sanitizers and lubricants; processing with a long and lengthening series of chemical adjuvants; and distribution with improved packaging materials [31]. In the consumers age, food safety refers to ensuring that food, at all points along the food supply chain, is kept safe for consumption in order to reduce food-borne disease regarding microbiological, chemical and physical contaminant hazards [32]. This illustrates the inconsistency in the food safety definition. It is even more complicated when we go for its understanding and connection to other terms and activities, which are related to this term. Good practices are the term closely connected in scientific and in practical terms. In general, good practice means activity of the quality assurance, which ensures that food products and food related processes are consistent and controlled to assure quality procedures in food systems [3].

Different types of organizations mentioned in the introduction unified the terminology concept in food supply chains that could be followed. In this study, we tried to analyse the existing disharmony, which appears in abstracts of journal articles in the food safety field. Regarding the roles in food safety chain, elements were sorted in two main categories named “causative agents” which present the barriers that affect food supply chain and “tools”, which should prevent these barriers. Interlinking two main categories “causative agent” and “tools” represents very important codes of good practices (Tab. 1), which are fundamental for ensuring food quality. Keywords related to the meaning of “farm to the table” food supply chain were sorted into thirty groups, named “elements” (Tab. 2; Tab. 3).

In “causative agents”, we have linked together barriers that affect food supply chain under the subcategories “hazards”, “food hygiene”, “epidemiology” and “consumers”.

Subcategory “hazards” (hazard is defined as a biological, chemical or physical agent in, or condition of, food or feed with the potential to cause an adverse health effect [33]) means inclusion of elements “contamination”, “risk analysis” and “enteric viruses”. Regarding the increased incidence of food-borne diseases caused by viruses, we selected only enteric viruses as representatives of the hazards, although there are not many articles, which would discuss this problem in the food safety field, in comparison to other microbiological hazards. In this subcategory, we noticed the use

of different keywords in the element “contamination”, where derivative of the word contamination mostly occurred (Tab. 2).

Subcategory “food hygiene” called “hygiene”, which is defined as measures and conditions necessary to control hazards and to ensure fitness for human consumption of a foodstuff taking into account its intended use [33], is a fusion of elements named “cleaning”, “disinfection”, “personnel”, “food environment”, “food handling” and “sanitation”, where a frequent use of words cleaning and sanitation in different phrases can be noticed (Tab. 2).

Elements “outbreaks”, “surveillance”, “food-borne diseases”, “foodborne poisoning”, “food allergy” and “health” were linked into the subcategory “epidemiology”, which is defined as the study of occurrence, distribution and control of disease in populations [34].

The last subcategory “consumers”, who are defined as a final food stuff who will not use the food as part of any food business operation or activity [35], describe consumer comprehension under elements “awareness”, “domestic preparation”, “education and knowledge” and “population groups”. However, elements “contamination” and “food environment” were found to have the biggest pool of keywords (Tab. 2).

In the second main category “tools”, we linked together keywords under the subcategories “food law”, “regulations”, “education and training”. Elements “institutions”, “legislation” and “inspection” were linked into subcategory “food law”, which is defined as laws, regulations both administrative provisions governing food in general, and food safety in particular, whether at Community or national level, and it covers any stage of production, processing and distribution of food, and also of feed produced for, or fed to food producing animals [35]. In the subgroup “food law”, keywords FDA (U.S. Food and Drug Administration) and EFSA (European Food Safety Authority) pre-

Tab. 1. Determination of two influencing categories with seven subcategories which create the basis of Code of Good Practices and define food supply chain terminology.

Food supply chain terminology		
Causative agent	CODE OF GOOD PRACTICES	Tools
<ul style="list-style-type: none"> • Hazards • Hygiene • Epidemiology • Consumers 		<ul style="list-style-type: none"> • Legislation • Regulations • Education and training

Tab. 2. Most frequently identified keywords in analysed abstracts, integrated into elements under the category “Causative agents”.

Category	Subcategory	Elements	Identified keywords
Causative agents	Hazards	Contamination	cross-contamination errors; cross-contamination prevention; contaminants; contaminated feed; contamination pattern; contamination of water supplies; pre- and post-harvest contamination; post-process contamination; viral contamination; contamination control; bacterial contamination; fungal contamination; toxin contamination; insects; parasites; pesticides; antibiotics; cleaning chemicals; allergens; toxic metals; veterinary residues; chemical additives; glass; wood; metal; stones; plastics
		Risk analysis	risk assessment; risk management; risk communication; risk avoidance; risk factors; risk information; risk perception; food hygiene risk
		Enteric viruses	caliciviruses; noroviruses; Norwalk like viruses; adenoviruses; enteroviruses
	Food hygiene	Cleaning	chlorine washing; cleaning frequency; cleaning procedures; cleaning methods; cleaning protocols; cleaning regimes; cleaning practices; cleaning cloths; cleaning records; cleaning schedules; cleaning standards; cleaning work surfaces;
		Disinfection	disinfection; disinfection of sponges; disinfection residue; disinfection procedures; disinfection protocol; disinfectant resistance
		Personnel	hands-, fingernails-, clothes-, toilet- employee hygiene; employee opinion; employee motivators; employee awareness; employee intention; employee perception; employee knowledge
		Food environment	cutting boards; cutting blocs; clothes; knives; thermometers; refrigerators; aprons; gloves; processing-, sink-, food-environment; abattoir; slaughterhouses; markets; stores; restaurants; canteens; hotels; hospitals; long term care facilities; domestic-, satellite-, central- kitchens
		Food handling	irrigation water; fertilization; sewage disposal; products-, ingredients-storage; products-, ingredients-distribution; transport; household hygiene
		Sanitation	sanitary characteristics; sanitary conditions; sanitary education; sanitary effectiveness; sanitizing equipment; sanitation programs; sanitation behaviours; sanitation practices; sanitation procedures; sanitization procedures
	Epidemiology	Outbreaks	/
		Surveillance	/
		Foodborne disease	foodborne illness; foodborne sickness; foodborne zoonoses; foodborne infections; vomiting; diarrhoeal diseases; intestinal diseases; animal diseases; gastroenteritis; viral food-borne illness; foodborne infection; bacterial foodborne illness
		Foodborne poisoning	algal toxins; natural toxins; emetic toxins; mycotoxins (ohra-toxins, aflatoxins, patulin, fusarium toxins)
		Food allergy	allergen control plan; allergen cross- contact; allergenic ingredients; allergy information; allergen database; allergenic foods; allergenic potential; allergenicity
		Health	health hazards; health problems; health standards
	Consumers	Awareness	instructions; labels; shelf-life; quality; safety; eating habits
		Domestic preparation	cooking; reheating; thawing; cooling; chilling; defrosting; home kitchen; domestic kitchen; domestic gardens
		Education/knowledge	training; TV shows; web; schools; magazines, newspapers; cooking courses
		Population groups	elderly; children; school children; young adults; adolescents; mothers; men; women; pregnant women; immunocompromised people

Tab. 3. Most frequently identified keywords in analyzed abstracts, integrated into elements under the category “Tools”.

Category	Subcategory	Elements	Identified keywords
Tools	Regulations	Standards	ISO 9000; ISO 22000; EUREP; IFS; BRC; BRI; Codex standards; documentations, keeping records; SSOP; SOP; education/knowledge; trade requirements; food hygiene requirements; international requirements; instructions
		Good practices	prerequisite programs; good hygiene practice; good manufacture practice; good storage practice; good trade practice; food safety practice; handling practice; foot hygiene practice; hand hygiene practice; cleaning practice; dietary practice; cooling practice; cooking practice; domestic food handling practice; domestic refrigeration practice; good trade practice; farm-, manure handling practice; farming practices; feeding practice; field to fork codes of practice; formula preparation practice; general hygiene practice; good agricultural practice; good educational practice; farm management practice; good preventive practice; good slaughtering practice; good training practice; knife cleaning practice; labelling practice; meat handling practice; personnel hygiene practice; pasteurization practice; processing practice; egg handling practice; food handling behaviours; domestic hygiene practice; mothers practice; refrigeration storage practice; good distribution practice; good storage practice; good catering practice; lifestyle practices; good nutritional practice; guidelines; hands-, equipment-, washing practice; washing behaviours
		HACCP	critical control point; PR/HACCP; Codex HACCP; HACCP barriers; HACCP hygienic code; temperature-, time-monitoring; traceability
		Codex Alimentarius	/
		Institutions	EFSA; FDA
	Food law	Government agencies	/
		Legislation	Food law: general principles and requirements of food law; EC178/2002; hygiene of foodstuffs; EC 852/2004; EC 853/2004; EC 854/2004; EC 882/2004; EU hygiene package; Directives: residues of veterinary medicinal products; pesticide contamination directives, radioactive contamination directives; biological safety; packaging
		Inspection	inspection system; inspection service; food hygiene inspection; violations
	Education & Training	Management personnel	managers
		Food professionals	food worker; food handler; employee; care takers; food service personnel
		Inspectors, regulators	government employees

vail over accurately quotation of named existing food laws (Tab. 3). Elements “standards”, “good practices”, “HACCP” and “Codex Alimentarius” were linked together in a subcategory named “regulations”, which should guarantee quality and safety standards and norms. We found the biggest disharmony and confusion at the element “good practices” (Tab. 3).

The last subcategory “education and knowledge”, definition of which is described in ISO 22000:2005 [36] as the food safety team and the other personnel carrying out activities having an impact on food safety, who shall be competent and shall have appropriate education, training, skills and experience, contains elements “manage-

ment personnel”, “food professionals” and “inspectors and regulators”. Keywords clustering into elements is presented in detail in Tab. 2 and the Tab. 3.

For the elements “outbreaks”, “surveillance”, “Codex Alimentarius” and “government agencies”, the identified keywords were the same as the names of the elements. At first sight, it looks like that food safety is determined by different tools and standards. But unfortunately this is not true, because the importance of exact terminology in food safety field it is frequently forgotten. With regard to our results, not enough attention is paid to food safety terminology in the food safety field as one of potential risk factors.

We have faced with several problems when searching for appropriate articles. One of the problems was that different databases did not have the same system of indexing descriptors, which was unclear and was hard to follow through different databases. Index heading “food safety” has been used in FSTA Thesaurus not earlier than 1992 [27], before that it was included under the index heading “health”. The biggest problem we have faced was that no descriptor exists in FSTA Thesaurus 2004, which would define good practices [27]. Due to this fact, searching was complicated and time consuming. If good practices were defined in FSTA Thesaurus 2004, the searching would be easier and simpler. The major problem with descriptors is that they are not created by authors and therefore do not allow a researcher to find the appropriate literature considering the existing knowledge, and that is why it is better to use keywords searching then descriptor searching. JACOB, MATHIASSEN and POWELL [9] stated that food safety messages found to be effective are relevant to the target audience, contain reliable information and are easily received and understood. Scientific findings have to make impact on practical work, professional communication and education if we want to fill up major gaps in the approach “from stable to table”.

JEVŠNIK, HLEBEC and RASPOR reported [12] that research results are strongly associated with the time of observation and old data often prove irrelevant in present situations, which were also noticed in our study. With regard to a food safety programme, which should be able to identify all hazards, analyse them, evaluate the likelihood of their occurrence and identify measures for their control [37], we tried to identify the potential risk factors, which contribute to the application of food safety programme along the food supply chain. There are two main factors in the food safety programme, which have significant influence on food safety along the food supply chain. On one side there are barriers, which negatively affect entire food supply chain. In our study barriers are represented in four subcategories. On the other side there are tools, which should prevent or reduce occurrence of all hazards and in this study are divided then in three subcategories. Interlinking all seven categories forms good practices, which have a very important intention to provide consumers with safe and quality products.

Common language among food safety professionals should be worldwide equally understood and should enable their consistent application. However, BAŞ, YÜKSEL, and CAVUŞOĞLU [11] already reported that complicated terminology

is one of the main barriers for food safety in the food business. We find the biggest disharmony and confusion at subgroup “regulations”, where element “good practices” is highlighted. Identified keywords include both general phrases such as prerequisite programmes, good hygiene practice, good manufacture practice, good storage practice, good trade practice, food safety practice, good agricultural practice etc. (Tab. 3), and unusual phrases such as foot hygiene practice, hand hygiene practice, domestic refrigeration practice, field to fork codes of practice, knife cleaning practice, refrigeration storage practice, food handling behaviours etc. (Tab. 3), which are all included in the element “good practices”. This confusion within the element “good practices” can be a consequence of the absence of communication with neighbouring or related good practices among food supply chain [7]. In our study we noticed numerous different interpretations and conceptualization of elements such as “contamination”, “food environment” and “good practices” without regard to main categories. This phenomenon can be ascribed to researchers, who set up their own explanations and definitions.

Besides all findings, we should not ignore the chaos in the food safety field regarding interpretation, understanding and use of terms “food safety” [37], “food security” [38] and “food defence” [39], the last also called “food-borne bioterrorism” [40]. In 1996, countries at the World Food Summit in Rome agreed that “food security” exists when all people, at all times, have physical and economic access to sufficient, safe and nutritious food to meet their dietary needs and food preferences for an active and healthy life [38]. Outcome of the events of September 11th heightened a perception that food is vulnerable and it can be used as a vehicle for the dissemination of harmful agents that could threaten public health. That is why experts introduced the definition of the term “food defence”, which can be defined as protecting the nation’s food supply from deliberate or intentional acts of contamination or tampering [39]. This is distinguished from “food safety”, which means protection of food products from unintentional contamination. Fortunately, the actual likelihood of intentional jeopardizing our food currently seems to be low compared to that of naturally emerging agents [41]. Nevertheless, we have to be aware of the existence of all three terms, the difference between them and use them correctly.

Inconsistent application of food safety terminology is observed at international level and consecutively also in national languages. This contributes to general confusion, which was already

identified by JEVŠNIK, HLEBEC and RASPOR [12]. We show that authors of scientific articles are using inconsistent food safety terminology concept and vocabulary, although a common language unified among food safety professionals is available and could be followed.

CONCLUSIONS

Food safety is a result of several factors: legislation should lay down minimum hygiene requirements, official controls should be in place to check food business operator's compliance, and food business operators should establish and operate food safety programmes and procedures based on HACCP principles. Each factor brings unique challenges to the development and transmission of food safety terminology. In order that all links in food supply chain are functioning altogether, each link should speak the same language. But unfortunately, we showed in this study that uniformed terminology is not in use in the food safety field, which means that food professionals do not speak the same language. Problem arises with development of new terms, which are normally from scientific level translated to professional level. With translation into practical level, it normally gathers new or at least additional meaning. This problem can be solved with unequivocal demand from science to define the term. Terms should also be consistently applied and that is only possible if consensus is reached. Consensus to the new terms could be entrusted to international organizations, which cover the scientific field. And where the food is in question, then we have two main organizations, which should bring about consensus. One of them is International Union of Food Science and Technology (IUFOST), and another is International Union of Microbiological Societies (IUMS). When application is in question, the translation can be assigned to agencies like EFSA or FDA, which are sound foundations for policies, legislation and to support the government in taking effective and timely risk management decisions. Further, agencies should also make the matter clear to all, who resume the terminology concept. Terminology concept should not be shattered in various documents, but should be gathered together and clearly defined in one place. In this way, the lexicon of food safety field can be established. Additionally, organizations like FSTA and PubMed should harmonize the terminology and their definitions in a consultation process with the previously mentioned associations. With regard to global food safety, all links in the food supply

chain have to use just one food safety terminology concept, which would represent a firm foundation for further use in practice. Our findings contribute to systematic planning of further research, directed towards appropriate strategies for elimination of inappropriate terminology and to development of common language among food safety professionals.

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