GUIDANCE DOCUMENT

Manual for Reporting of Food-borne Outbreaks in the framework of Directive 2003/99/EC[1]

Guidance Document of the Task Force on Zoonoses Data Collection

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Summary

This Manual provides specific guidance for reporting of food-borne outbreaks to the Community level and it is based on the reporting format described in the *Report on harmonising the reporting of food-borne outbreaks through the Community reporting system in accordance with Directive 2003/99/EC.*

The manual includes the description of the structure and scope of the reporting system for food-borne outbreaks, the definitions used in the system as well as the variables to be reported on. It gives detailed advice, often through examples, how to report and classify the causative agents, the foodstuffs implicated, settings, places of origin of problem and the contributory factors.

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1. Introduction

Directive 2003/99/EC on the monitoring of zoonoses and zoonotic agents[1] (Zoonoses Directive) covers the epidemiological investigation and reporting of food-borne outbreaks in the Member States (MSs) of the European Union (EU). Thorough investigation of food-borne outbreaks aims to identify the pathogen, the food vehicle involved, and the factors in the food preparation and handling contributing to the outbreak. The Zoonoses Directive makes provisions for such investigations and for close co-operation between various authorities.

The competent authority of each MS must provide the Commission with a summary report of the results of the investigations of food-borne outbreaks, which is sent to the European Food Safety Authority (EFSA). Minimum reporting requirements for the food-borne outbreaks are laid down in Annex IV (E) to the Directive. In addition, in accordance with the procedure referred to in Article 12, detailed rules concerning the assessment of the reports, including the format and the minimum information they must include, may be laid down.

The data collection may allow the identification of emerging trends in the causative agents and vehicles in the Community. Data regarding food-borne outbreaks provides important information on the number of humans affected annually and complements the picture of the burden of food-borne disease given by the total number of cases of disease in the Community. The added value concerns especially the information on the causative agent-food vehicle combinations responsible for the food-borne outbreaks. This information is necessary when targeting actions to improve food safety in the Community.

In order to obtain more in-depth information on the food-borne outbreaks, more detailed data may be collected from certain particularly well-investigated single food-borne outbreaks. This information would increase the understanding of the epidemiology of the causative agents and could possibly be used for risk assessments.

The report from the Task Force on Zoonoses Data Collection on harmonising the reporting of food-borne outbreaks through the Community reporting system in accordance with Directive 2003/99/EC (EFSA Journal (2007) 123, 1-16) describes the new reporting specifications. The report is available on EFFSA website at:
http://www.efsa.europa.eu/EFSA/efsa_locale-1178620753812_1178662632770.htm

This manual for the reporting of food-borne outbreaks has the objective to further guidance on the reporting.

2. Structure of the food-borne outbreak reporting system

The food-borne outbreak reporting system is web-based and accessible on the EFSA zoonoses reporting homepage as part of the zoonoses reporting system (www.efsa.europa.eu/zoonoses).

The national food-borne outbreak report is divided into three sections:

- Description of the national reporting system and national evaluation of the reported food-borne outbreaks (free text form)
- Total number of food-borne outbreaks (table form)
- Data to be reported for verified food-borne outbreaks (table form)

The text form is used to enter the narrative part of the report.
The reporting tables are used to enter results of investigations. Pick lists are provided for most data fields in the tables to facilitate reporting (see page 21).

3. Relevant outbreaks and causative agents to be reported

The annual reporting system covers the results of the investigations of all food-borne outbreaks carried out in MSs. 'Food-borne outbreak' is defined in the Directive '*as an incidence, observed under given circumstances, of two or more human cases of the same disease and/or infection, or a situation in which the observed number of human cases exceeds the expected number and where the cases are linked, or are probably linked, to the same food source'* (Directive 2003/99/EC, Article 2(d)).

For the purpose of the reporting system, this is understood to include food-borne outbreaks caused by any virus, bacterium, alga, fungus, parasite, and its products, such as toxins and biological amines (e.g. histamine). Reporting should not be limited to food-borne outbreaks caused by zoonotic agents only but should include food-borne outbreaks caused by any of the agents above. Outbreaks caused by ingestion of drinking water are also considered food-borne since drinking water is defined as food in Regulation 178/2002/EC. Food-borne outbreaks caused by chemical agents are not covered at this stage.

4. Definitions

For the purpose of this reporting system, the following definitions apply:

Analytical epidemiological evidence: evidence of a statistically significant association between a food item (foodstuff) and the human cases in the food-borne outbreak demonstrated by either a cohort study or a case-control study.

Causative agent: the agent considered being the cause of the food-borne outbreak(s) and typically the one detected in the persons affected and/or in the implicated food.

Contributory factor: factor that contributed to the occurring of the food-borne outbreak. This may include deficiencies in food handling or the use of contaminated material.

Food (or foodstuff): any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans (Reg. (EC) No 178/2002). This definition includes drinking water (Reg. (EC) No 178/2002) and covers single food items as well as composite meals.

Food-borne outbreak: 'means an incidence, observed under given circumstances, of two or more human cases of the same disease and/or infection, or a situation in which the observed number of human cases exceeds the expected number and where the cases are linked, or are probably linked, to the same food source' (Directive 2003/99/EC).

- *Verified food-borne outbreak* is understood to cover outbreaks compatible with descriptive epidemiological evidence and at least one of the following: laboratory detection of the causative agent in the implicated food or analytical epidemiological evidence.
- *Possible food-borne outbreak* is understood to cover outbreaks compatible with descriptive epidemiological evidence alone (including those outbreaks where the causative agent is unknown).

Household outbreak: food-borne outbreak involving human cases living in one household.

General outbreak: food-borne outbreak involving human cases from more than one household. Outbreaks in residential homes (*e.g.* nursing homes), schools, and other similar institutions are considered to be general outbreaks.

Laboratory characterization: characterization of the causative agent(s) and/or toxins to the level (of speciation / sub-typing, e.g. sero- / phage- / ribo-typing, or Pulsed Field Gel Electrophoresis-profile) needed to link human cases to each other and to the implicated food.

Laboratory detection: detection of the potential causative agent or toxin or bio-active amine in clinical samples or in a food sample taken in the course of the investigation,

Outbreak cases: The number of human cases involved in the food-borne outbreak as defined by the investigators. These can include people with asymptomatic infections. Case definitions for human cases for most common zoonotic infections have been established by the EU Commission (COMMISSION DECISION of 19 March 2002 laying down case definitions for reporting communicable diseases to the Community network under Decision No 2119/98/EC of the European Parliament and of the Council, available at http://eur-lex.europa.eu/pri/en/oj/dat/2002/l_086/l_08620020403en00440062.pdf).

Onset of food-borne outbreak: the onset of symptoms in the first reported case. Alternative definitions used by Member States are applicable as well, for example, some Member States do not record the earliest date of onset but the reporting date instead.

Place of origin of problem: place other than setting where the contamination or the mishandling of the implicated food occurred.

Descriptive epidemiological evidence: information linking two or more persons with clinical symptoms consistent with a disease caused by the same pathogen, with a possible food vehicle in common.

Setting: place of exposure to the implicated food. This is the location where the food was consumed (e.g. café/restaurant, institution, private home) or where the final stages of preparation of the suspect food took place (*e.g.* take-away outlet).

5. Information on the evidence supporting the food borne outbreak

The type of data supporting the link between the food vehicle and the food-borne outbreak varies. For the purpose of the overall analysis at Community level, it is useful to make a distinction between **possible food-borne outbreaks** and **verified food-borne outbreaks** on the basis of the existence of scientific evidence to support the link between human cases and the food source.

Making the distinction between possible and verified food-borne outbreaks does not involve any judgement as to the quality and validity of the investigation.

Possible food-borne outbreaks are defined in such a way as to include all outbreaks which might be caused by consumption of food, in order to study the overall extent and impact of food-borne outbreaks in the Community. In contrast, the definition of verified food-borne outbreaks is rather strict, on purpose, to stimulate the collection of limited data of good quality for these outbreaks. MSs are strongly encouraged to report the verified food-borne outbreaks individually. This reporting should cover information on the type of evidence supporting the link between food and the outbreak. The data on verified food-borne outbreaks allows basic analysis of the nature of food-borne outbreaks in the Community, whereas information on the outbreaks supported by the strongest evidence will be used for more in-depth analysis of food vehicles and causative agents, e.g. in risk assessments.

6. Data reporting

The Zoonoses Directive requires MSs to collect, evaluate and report data on zoonoses, zoonotic agents, antimicrobial resistance and food-borne outbreaks every year. EFSA has established this web-based reporting system to streamline and harmonise the reporting under Directive 2003/99/EC.

For the annual reporting of the results from food-borne outbreak investigations different forms are available, each of which are described in the following sections:

- National reporting system description and national evaluation of the reported food-borne outbreaks (free text form)
- Total number of food-borne outbreaks (table form)
- Data to be reported for verified food-borne outbreaks (table form).

6.1. National reporting system description and national evaluation of the reported food-borne outbreaks (free text form)

This free text form is used to describe the national system in place for identification, epidemiological investigations and reporting of food-borne outbreaks. The consideration of the national context is important for the analysis of the submitted tabular data. The form is split into several sections, which are described in detail below. In order to ease reporting of this information, the text submitted through this form by a MS in the previous year may be automatically copied to the next report so that there is only a need to update the free text where appropriate.

Procedures for investigation and reporting (incl. frequency of reporting) of food-borne outbreaks and their legal basis at the national level.

Under this title the system and procedures in place for identification, epidemiological investigation and reporting of food-borne outbreaks in the MS are described. This should include the authorities and institutions involved in the activities, their roles and the coordination between the authorities, the legal basis for the activities, mandatory and voluntary activities, and the frequency of reporting.

Any relevant changes in the national reporting system in comparison to previous year(s).

Here, all relevant changes in the national reporting system that took place since the last reporting, should be indicated. For instance, if new case definitions have been implemented, this should be detailed here.

Differences in the definitions used and in the scope of the national system as compared to the Community system.

Any differences between the national system and the Community system should be outlined here. For example, if a given system does not record household outbreaks or does not differentiate between general or household outbreaks, this should be mentioned here. Also, if outbreaks caused by toxins are not reported to the national system, this should be reported here.

National evaluation of the reported food-borne outbreaks

Inclusion of information on the national evaluation of the reported food-borne outbreaks is envisaged in the Zoonoses Directive. This is required to ensure that the data submitted by the MSs is correctly interpreted at Community level. The respective areas for which a national evaluation should be provided are explained in detail below.

- The trend in the number of food-borne outbreaks and possible underlying reasons

It should be described whether the number of food-borne outbreaks and, possibly, also the number of human cases in these outbreaks has increased, decreased or remained stable over the years. Possible reasons for the observed trends should be given as well. For example, an increase in the number of food-borne outbreaks over several years might be related to a change in food consumption, trade patterns or other factors.

Example:
"In 2005, the municipal food control authorities notified 58 food poisoning outbreaks, of which 53 were associated with food and five with drinking water.
The number of recorded outbreaks has constantly decreased since 1999. In 2003 the number of outbreaks was 63, being almost 60% less than in 1998. In 2004 the number of outbreaks slightly increased for the first time in five years due to changes in the reporting system."

- Relevance of the different causative agents, food categories and the agent/food category combinations

The relevance of different agents and the food categories, including possible trends in them, are described. Epidemiological associations resulting of evaluation of data as regards to time, place, and/or person can be reported, as well, if the information is available.

- Relevance of different types of place of food production and preparation in food-borne outbreaks

The relevance of different types of places of food production and preparation in outbreaks including descriptions of the distribution of the outbreaks according to the location of exposure and the relevance of different locations is reported, including possible trends in them.

Example:
"More than 60% of the outbreaks were reported to be linked to mass catering facilities. *Salmonella* outbreaks are detected mainly in private homes and commercial restaurants."

- Evaluation of the severity of the human cases (e.g. trends in the number of deaths and hospitalisations)

The severity of a disease caused by the outbreak can be characterised by reporting the number of deaths and hospitalisations. An evaluation of disease severity could be done by presenting the trends of these numbers developing over a period of several years. In the context of food-borne outbreak reporting, the evaluation of the severity of diseases related to food-borne outbreaks facilitates the evaluation of the public health impact of the outbreaks.

Example:
"On average, an outbreak caused by viruses involved 22 human cases, which was almost three times more than an outbreak caused by *Salmonella* (8 cases) and four times more than *Campylobacter* (4 cases). However, when comparing the proportion of cases admitted to hospital out of the total number of cases, approximately twice as many *Salmonella* cases were admitted to hospital compared to cases infected with *Campylobacter* and almost four times more compared to cases infected with food-borne viruses."

Measures or other actions taken to control or prevent food-borne outbreaks

Control measures or other actions taken at the national level to control or prevent food-borne outbreaks in the MS during the reporting year are described. If available, evaluations of the effectiveness of measures taken are very welcome also.

Example:
"Since 2005, logistic slaughtering is applied for *Salmonella*-free poultry in order to prevent cross-contamination."

6.2. Number of food-borne outbreaks (table form) and distinction between possible and verified food-borne outbreaks

The total number of food-borne outbreaks that occurred during the reporting year is reported as well as the number of possible and verified food-borne outbreaks in the tables. In addition, for the **possible food-borne outbreaks,** summarised data on the numbers of human cases, numbers person hospitalised and deaths per causative agent is to be reported. For the **verified food-borne outbreaks** an additional table is available to collect more detailed information (see 6.3).

A possible food-borne outbreak is defined as an outbreak compatible with descriptive epidemiological evidence alone (including those outbreaks where the causative agent is unknown).
This means that there are two or more persons known to have (similar) clinical symptoms that indicate to a disease caused by same (food-borne) pathogen (the pathogen may or may not have been isolated from the human cases).
In addition there should be some indication that these persons have consumed the same food (e.g. attended the same meal). But there are no stronger evidence to support this link between the human cases and the food; e.g. no detection of the pathogen from food and no significant association between the human cases and the food (e.g. no epidemiological analyses done or missing data).

This includes, for example, outbreaks where it was possible to link the outbreak cases with one or several possible food vehicles that were consumed by most of the cases, yet samples collected from the possible food vehicles in common did not yield any pathogen and no analytical epidemiological study was carried out. Please note that outbreaks where the causative agent was identified only from the human cases without any analytical epidemiological evidence, is classified as possible food-borne outbreak.

A verified food-borne outbreak is defined as an outbreak compatible with descriptive epidemiological evidence (i.e. having two or more persons known to have clinical symptoms that indicate to a disease caused by same pathogen and indication that these persons have consumed the same food), and in addition there have to be at least one of the following;
- laboratory detection of the causative agent in the implicated food, **or**
- analytical epidemiological evidence (a statistically significant association between a foodstuff and the outbreak cases demonstrated by either a cohort study or a case-control study).

Please note that the detection of the agent from human cases is not required, and also outbreaks caused by unknown agent can be classified as verified outbreaks in case there is the epidemiological evidence available.

The Table 1 illustrates the classification of the outbreaks in different cases.

Table 1. Classification of food-borne outbreaks to possible and verified ones on the basis of the available evidence supporting the link between the human cases and the food

	Descriptive epidemiolo-gical evidence (possible common food source for human cases)	Detection of agent in human cases	Detection of agent in implicated food	Laboratory characterisation (same agent strain in human cases and food)	Analytical epidemiological evidence (stat. significant association between human cases and food)
Not a food-borne outbreak	-	-	-	-	-
Not a food-borne outbreak	-	+	-	-	-
Possible food-borne outbreak (agent unknown)	+	-	-	-	-
Possible food-borne outbreak	+	+	-	-	-
Verified food-borne outbreak	+	-	+	-	-
Verified food-borne outbreak	+	+	+	-	-
Verified food-borne outbreak (agent unknown)	+	-	-	-	+
Verified food-borne outbreak	+	+	+	-	+
Verified food-borne outbreak	+	+	-	-	+
Verified food-borne outbreak	+	+	+	+	-/+

For possible food-borne outbreaks MSs are asked to specify the number of outbreaks per causative agents. This should be done for the following causative agent categories:

- *Salmonella* spp.
- *Campylobacter* spp.
- *Listeria monocytogenes*
- *Yersinia* spp.
- Pathogenic *E.coli*
- *Bacillus* spp.
- *Staphylococcus* (enterotoxins)
- *Clostridium* spp.
- Parasites
- Food-borne viruses
- Other agents
- Unknown causative agent

Please note that regarding the 2008 data, also the following information on the possible food-borne outbreaks shall be reported:
- Number of human cases in the outbreaks (summarised by causative agent);
- Number of hospitalisations (summarised by causative agent); and
- Number of deaths (summarised by causative agent)

The reporting format is presented in Table 2.

Table 2: Foodborne outbreaks summarised data – table provided in the web application for reporting with some examples

Causative agent category	Total number of outbreaks	Number of possible outbreaks	Human cases in possible outbreaks	Hospitalisations in possible outbreaks	Deaths in possible outbreaks	Number of verified outbreaks
Bacillus	3	1	44	0	0	2
Campylobacter	30	20	200	4	unknown	10
Clostridium	0	0	0	0	0	0
Escherichia coli, pathogenic	0	0	0	0	0	0
Foodborne viruses	60	50	100	unknown	unknown	10
Listeria	3	2	10	4	1	1
Other agents	0	0	0	0	0	0
Parasites	0	0	0	0	0	0
Salmonella	50	20	450	10	0	30
Staphylococcus	10	0	0	0	0	10
Unknown	10	7	60	unknown	unknown	3
Yersinia	0	0	0	0	0	0

All food-borne outbreaks that have their onset during the reporting year should be reported. Preferably the onset of the outbreak is defined as the onset of symptoms in the first reported case but alternative definitions used by MSs are applicable as well. For example, some MSs do not record the earliest date of onset but the reporting date instead. In this case the reporting date would be reported as the onset of the outbreak but this alternative definition should be specified in the description of the national reporting system provided in the text form (see 6.1). It is important however, that the definition is used consistently throughout the reporting.

6.3. Data to be reported for verified food-borne outbreaks (table form)

In order to balance feasibility and the need for detailed information MSs are requested to submit data on a limited number of variables for verified food-borne outbreaks only (in line with the definition of the Zoonoses Directive as specified earlier).

The information can be either manually inputted through the reporting application or uploaded in bulk in XML format. The web application allows the input of data both in individual outbreak format and also in aggregated format. Food-borne outbreaks can be aggregated on the basis of causative agent (where all food-borne outbreaks known to be caused by the same causative agent are reported in one row).

MSs are strongly encouraged to provide the outbreak data in an individual format to avoid losing information because of data aggregation. However, aggregation might be an appropriate and time-saving option for the reporting of food-borne outbreaks with limited data which share the same causative agent or where the causative agent is unknown.

The variables to be reported on are summarised in Table 3

Table 3. Variables for reporting of data resulting from investigations of verified food-borne outbreaks

Variable	Field type	Description of the data to be provided
Code	Free text	This field is used to include a national code / unique identifier for the food-borne outbreak (national number) for relation to national database, if such a code exists.
Causative agent	Pick list (see 8.1)	Include, when possible, the serotype, the speciation and, if available, the phage type. In cases where no agent could be detected, the causative agent should be reported as unknown. In cases where there is more than one agent involved (mixed infections) all relevant agents can be selected from the pick list.
Type of outbreak	• Household • General • Unknown	Specify the type of food-borne outbreak; see definitions of household and general outbreak. If it was not possible to identify the type of outbreak or if the information is not available, please choose the option “Unknown”.
Number of outbreak cases	• Number or • Unknown	The number to be reported should include all those meeting the outbreak case definition, including those who were hospitalised or who died as a result of the food-borne outbreak. In case of aggregated reporting cases from all separate outbreaks should be summed-up.
Number of hospitalisa-tions	• Number or • Unknown	The number of outbreak cases who were hospitalised, which is defined as an admission to hospital with illness due to the causative agent including at least one over-night stay.
Number of deaths	• Number or • Unknown	The number of outbreak cases who died as a result of the food-borne outbreak(s). Only

		deaths attributable to the causative agent responsible for the outbreak should be reported.
Foodstuff implicated	Pick list (see 8.2) Free text field	The foodstuff category (also referred to as vehicle) implicated in the food-borne outbreak is reported using the pick list. For more detail a "free text field" can be used to define the foodstuff in more detail.
Type of evidence linking outbreak with food or with a specific food vehicle	• Laboratory detection in implicated food • Laboratory detection in human cases • Laboratory characterization of isolates from food and human cases • Analytical epidemiological evidence	Specify the level of evidence for incriminating food as cause of the outbreak, see definitions. Since this concerns verified food-borne outbreaks only, descriptive epidemiological evidence is pre-supposed. For food-borne outbreaks where more than one type of evidence was observed all relevant evidence types should be reported.
Setting	Pick list (see 8.3)	See definitions.
Place of origin of problem	Pick list (see 8.4)	See definitions.
Origin of foodstuff	• Domestic • Intra Community trade • Imported from outside EU • Unknown	Information whether the implicated foodstuff originated from domestic market, intra-community trade or was imported from outside EU.
Contributory factors	Pick list (see 8.5)	Contributory factors are factors that contributed to the occurrence of the food-borne outbreak. These may include deficiencies in food handling or contaminated raw materials. If there is more than one contributory factor involved, all the relevant ones are chosen from the pick list.

More information	Yes No	If yes, a separate free text field will be provided where additional information can be reported. This field allows to provide more information on food-borne outbreaks of special interest such as those caused by extraordinary causative agents, vehicles, or their combination, or which have been thoroughly investigated and/or reported through RASFF or EWRS. This field typically describes the results of the epidemiological investigations, sub-typing information of the agents and may include a reference to a publication (e.g. in Eurosurveillance). In cases where the agent was successfully isolated from the food item and has been quantified this field can be used to report quantitative laboratory results (as cfu/ml or cfu/g or as MPN/ml or MPN/g).

7. Further guidance on the variables to be reported for the verified outbreaks

Further explanations for some of the variables of the table above are given below. Detailed explanations and examples of possible entries are included in Chapter 8 of this manual.

7.1. Causative agent

The agent (bacterium, virus, parasite, toxin), which was detected and/ or isolated in the course of the investigation and which is considered to be the cause of the outbreak is reported. A pick list is provided (see 8.1) to facilitate reporting by choosing the particular agent directly from the list, which gives as much detail as needed in terms of serotype, speciation or phagetype. However, it is also possible to report additional information on the subtypes in the comment field. This might be appropriate if the agent or subtype is not included in the list.

In cases where more than one agent is involved in the outbreak, e.g. in mixed infections, the all relevant agents can be selected from the pick list.

In cases where no agent could be detected, the causative agent should be reported as unknown.

Please note the following examples:

> An outbreak of gastroenteritis occurs among residents of a Member State. *Salmonella* Montevideo is isolated from stool samples of the human cases. A case-control study reveals that the illness was linked to consumption of chicken nuggets of brand A. Samples of chicken nuggets of brand A are analysed and *S*. Enteritidis is isolated. None of the samples tested yields any *S*. Montevideo. The negative results of the food samples do not rule out that *S*. Montevideo was present in the food consumed by the human cases. Thus, the causative agent to be reported for this outbreak should be the agent found in the human cases, i.e. *Salmonella* Montevideo. The isolation of *S*. Enteritidis in the incriminated food is considered a secondary finding.

7.2. Type of outbreaks

The type of outbreak, i.e. household or general outbreak, should be reported here if known. A general outbreak is defined as a food-borne outbreak involving human cases from more than one household. Outbreaks in residential homes (*e.g.* nursing homes), schools, and other similar institutions are considered general outbreaks. A household outbreak is defined as a food-borne outbreak involving human cases living in one household. A household on its part is defined as one person living alone or a group of persons (who may or may not be related) living at the same address with common housekeeping.

For example:

> an outbreak occurs involving persons from several households, who have all attended a private party in the household of one of the cases and consequently developed a food-borne illness. This outbreak should be reported as a “general outbreak” with “household” as the “setting” of the outbreak.

In cases where the national reporting system does not collect data on the type of outbreak or if it was not possible to identify the type of outbreak for a particular outbreak, the option "unknown" should be selected.

7.3. Foodstuffs implicated

Foodstuff, also referred to as "food", is defined as any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans. Food includes drinks, chewing gum and any substance, including water, intentionally incorporated into the food during its manufacture, preparation or treatment. This definition also includes drinking water and covers single food items as well as composite meals (Reg. (EC) No 178/2002).

The foodstuff implicated in the outbreak is the food considered to have been the vehicle of the causative agent or its toxins. A foodstuff should be considered to have been the vehicle of the causative agent or its toxins when the causative agent or its toxin has been detected in a sample of this foodstuff and/or when a statistically significant association between this foodstuff and the outbreak has been demonstrated by a cohort study or a case control study.

The description of the foodstuff implicated in the outbreak is done by using the provided pick list that gives the main categories of foodstuffs (see 8.2). Apart of this, the foodstuff in question should be described more in detail in the free text field. This information may typically include the type of food (e.g. cheese, sausage), the nature of processing given to the foodstuff (cooked, raw, made from raw milk). Also the animal/ plant species where the food originates is an important information to be reported on.
However, since the pick list is not exhaustive and gives only a limited level of detail it is recommended to submit more detailed information, e.g. on the (food animal/plant) species and the treatment of the food in the additional free text field.

> For example, if the implicated foodstuff to be reported was "roast beef", the category to be selected from the pick list is "bovine meat and products thereof". The additional information on the treatment (e.g. "roast beef") can be submitted in the free text field.
> If the implicated foodstuff was boiled cauliflower, the category to be selected from the pick list would be "vegetables and juices and other products thereof". Further information like the species or cultivar group ("cauliflower") and the treatment ("boiled") should be submitted in the free text field.

7.4. Type of evidence linking outbreak with food or with a specific food vehicle

The type of evidence linking food in general or a specific food item in particular with outbreak cases is reported by choosing one or more evidence types from the four options: "laboratory detection in implicated food", "laboratory detection in human cases", "laboratory characterisation of isolates from food and human cases", and "analytical epidemiological evidence".

Please note that the descriptive epidemiological evidence is pre-supposed as the reporting concerns only verified food-borne outbreaks.

For food-borne outbreaks where more than one type of evidence was observed all relevant evidence types are reported. E.g. if the link between a food vehicle and human cases was proven by an analytical epidemiological study AND if the causative agent was

detected in the food and the human samples and further identified to be the same strain then all four levels of evidence should be selected.

Please note that all the verified outbreaks should at least have one type of evidence indicated: either the laboratory detection from implicated food or analytical epidemiological evidence. Otherwise they would not be classified as verified.

Laboratory detection in implicated food

Laboratory detection in implicated food is defined as the detection of the potential causative agent or toxin or bio-active amine in a food sample taken in the course of the investigation. This is the type of evidence to be selected for food-borne outbreaks where the potential causative agent was detected in a sample of the implicated food deriving from the possible food vehicle in common.

Detection of the causative agent from the left-overs of the incriminated meal/food item, from samples collected from open packages of the incriminated food and from samples collected from unopened packages from the same batch as the incriminated food are regarded as equivalent to “laboratory detection”.

Laboratory detection in human cases

Laboratory detection in human cases is defined as the detection of the potential causative agent or toxin or bio-active amine in clinical samples of the human cases in the outbreak. This is the type of evidence to be selected for food-borne outbreaks where the potential causative agent was detected in human specimens.

Laboratory characterisation of isolates from food and human samples

Laboratory characterization is defined as the further characterization of the causative agent(s) and/or toxins to the level (of speciation / sub-typing, e.g. sero- / phage- / ribo-typing, or Pulsed Field Gel Electrophoresis-profile) needed to link definitely the human cases to each other and to the implicated food. Thus, it means that the same subtype/strain of the agent is isolated both from the implicated food and the human cases.

Laboratory characterisation implies automatically that the causative agent is isolated both from the human cases and the food, thus it is advisable to indicate all these evidence types for the outbreak.

> For example, in the course of an outbreak investigation *Salmonella* Typhimurium was isolated from samples from human cases and from a possible food source in common. Further laboratory characterisation identified both isolates as *Salmonella* Typhimurium DT 104. In this case the appropriate type of evidence would be “laboratory characterisation of isolates from food and human cases”.

Please note that some agents, such as *Trichinella*, cannot be characterised further than the genus level in the human cases, because mainly serological methods are used, while isolates from food specimens can be further characterised. In such a case “laboratory detection in human cases” would be the correct option to pick.

For further examples for the level of typing needed see table 4.

Table 4: Level of characterisation typically needed to link human cases to the implicated food or to each other

Causative agent	Level of characterisation needed to link human cases to the implicated food or to each other*
Brucella	Speciation and/or biotyping e.g. *Brucella melitensis* biotype 1
Campylobacter	Speciation and genotyping (e.g. PFGE, AFLP, MLST)
Cryptosporidium	Genotyping (PCR, RFLP)
Enterobacter/ Chronobacter	Speciation
Flavivirus	Speciation and genomic characterisation of strains (e.g. PCR and sequencing of the PCR product)
Giardia	Genotyping (PCR, RFLP)
Hepatitis-A-Virus	Genomic characterisation of strain (e.g. PCR and sequencing of the PCR product)
Listeria	Serotyping, genotyping (PFGE)
Norovirus	Genomic charactersiation of strain (e.g. PCR and sequencing of the PCR product)
Pathogenic *E.coli*	Complete serotyping (O,H) and typing of virulence genes; in addition for frequent serotypes (e.g. O:157) genotyping (PFGE, MLVA)
Rotavirus	Genomic characterisation of strain (e.g. PCR and sequencing of the PCR product)
Salmonella serotypes in general	Classification to White-Kaufmann-Le-Minor scheme, antimicrobial resistance patterns and PFGE
S. Typhimurium	Phagetyping and antimicrobial resistance; in addition for common phagetypes (e.g. DT 104) molecular typing, plasmid profiling, PFGE, MLVA
S. Enteritidis	Phagetyping and antimicrobial resistance patterns; in addition for common phagetypes (e.g. PT4) molecular typing, PFGE, MLVA, ribotyping
Shigella	Speciation and biotyping and serotyping
Staphylococcal enterotoxins	Toxin determination
Trichinella	Only "laboratory detection" possible as in humans, only serology is usually carried out, which does not go beyond the genus level
Vibrio	Biotyping and serotyping, pathogenic factors
Yersinia	Biotyping and serotyping e.g. *Yersinia enterocolitica* biotype 1, serotype O:3

* AFLP = **A**mplified **F**ragment-**L**ength **P**olymorphism
MLST = **M**ulti **L**ocus **S**equence **T**yping
MLVA = **M**ultiple **L**oci **V**ariable-Number Tandem Repeat **A**nalysis
PCR = **P**olymerase **C**hain **R**eaction
PFGE = **P**ulsed **F**ield **G**el **E**lectrophoresis
RFLP = **R**estriction **F**ragment **L**ength **P**olymorphism

Analytical epidemiological evidence

This type of evidence applies to outbreaks where a statistically significant association between a foodstuff and the outbreak cases has been demonstrated by either a cohort study or a case-control study.

A cohort study is a study in which individuals with differing exposures to a risk factor (e.g. eating the foodstuff implicated) are identified and then observed for the occurrence of certain health effects (e.g. clinical symptoms) over some period. Cohort studies can either be performed prospectively or retrospectively from historical records (e.g. in case of food-borne outbreak investigations).

Retrospective cohort studies are feasible for outbreaks in small, well-defined populations in which all persons exposed (e.g. exposed to one or more foodstuffs) and all non-exposed persons are identifiable. These studies compare the occurrence of disease among those who were exposed to a suspected risk factor (e.g. a particular food) with occurrence among those who were not. For example, all persons attending a reception (the "cohort") may be interviewed to determine whether they became ill after the reception, and to identify what foods they had consumed. Attack rates for illness are calculated for those who consumed a particular food and for those who did not consume that food. A ratio of the two attack rates, known as the relative risk (RR), can be calculated. The relative risk is a measure of the strength of association between the particular exposure and the disease.
[Modified after: Food-borne disease outbreaks: Guidelines for investigation and control; World Health Organization, 200824]

A case-control study compares persons with a disease or condition ('human cases') to another group of people from the same population who don't have that disease or condition ('controls'). A case-control study can identify risks (e.g. having eaten the food), and suggest some possible causes for disease, or for particular outcomes (e.g. having eaten the implicated food).

In many circumstances, no clearly defined "cohort" of all exposed and non-exposed persons can be identified or interviewed. In such situations a case–control study can be carried out. In a case–control study, the distribution of exposures of risk factors (e.g. foodstuffs) among cases and a group of healthy persons ("controls") are compared with each other. In contrast to a cohort study, attack rates (and therefore relative risk) cannot be calculated since the total number of persons at risk is unknown. Instead, a different measure of association, the odds ratio (OR) is used. For rare conditions (i.e. less than 5% in the population are affected), the odds ratio is a good estimate of the relative risk.
[Modified after: Food-borne disease outbreaks: Guidelines for investigation and control; World Health Organization, 2008]

> Example (adapted from Eurosurveillance weekly 2005, Volume 10, Issue 10):
> An outbreak of *Cryptosporidium* infections occurred among employees at a large private company in week 34, 2005. To investigate the cause of illness a case-control study was initiated. Cases were cryptosporidiosis patients with a positive laboratory result and controls were residents picked from the population register with no history of gastrointestinal illness in the period under study. Results of the case-control study indicated that disease was associated with eating in the company canteen in the first part of week 34. Subsequently, a cohort study was conducted among all employees of the company. An elevated risk of disease was associated with eating in the company canteen on Monday (relative risk [RR]: 4.1, 95% confidence intervals [CI]: 2.2-7.6) or Tuesday (RR: 4.4, 95% CI: 2.2-8.8) in week 34, and eating from the salad bar on those days (RR: 3.1, 95% CI: 2.0-4.8 and RR: 3.1, 95% CI: 2.0-4.7, respectively).

7.5. Setting

The setting, which is defined as the place of exposure to the implicated food, should be reported by selecting the respective category of the pick list (see 8.3).

The setting typically refers to the location where the food was consumed (e.g. Household, Restaurant/Café/Pub/Bar/Hotel) or where the final stages of preparation took place (*e.g.* Canteen or workplace catering, Household).

In cases where the food was prepared in a take-away service and eaten at another place, e.g. a private household, the "Take-away" should be reported as the setting.

In the context of this reporting system, a restaurant is considered a take-away service if the food was prepared at the restaurant but taken away by the consumer and consumed somewhere else (e.g. many pizzerias provide take-away service).

7.6. Place of origin of problem

The place of origin of the problem is defined as the place, other than setting, where the contamination or the mishandling of the implicated food occurred. This information is not always available, but in case the problem has been traced in the food chain, it is an interesting information to be reported on.

The pick list (see 8.4) provides the categories to be reported on.

7.7. Origin of foodstuff

The origin of foodstuff is reported if known, e.g. whether the implicated foodstuff originated from the domestic production, from Intra-Community trade or was imported from countries outside the EU.

7.8. Contributory factors

Factors that contributed to the occurrence of the food-borne outbreak are reported using the provided pick list (see 8.5). The pick list allows multiple selection since there is often more than one factor involved.

Typical examples for contributory factors are insufficient chilling due to overstocking of cooling chambers or insufficient hot holding at buffets.

Infected food handlers (e.g. cooks or other kitchen workers) are frequently reported as a contributory factor although they can also be outbreak cases. In practice it is not always possible to make a clear distinction between an infected food handler as a contributory factor or only as one case in the outbreak. It is advisable to choose "infected food handler" only when it is likely that the infected food handler was the source of infection.

7.9. Reporting on mixed food-borne outbreaks (verified)

With mixed food-borne outbreak it is meant an outbreak where more than one causative agent is identified. When reporting the mixed outbreaks in the reporting tables within the web reporting system, one has to choose first what causative agent is considered as the main one. The outbreak is then reported under this agent category, and there it is possible to add the other causative agents from the pick list of "sub-agent choice".

7.10. Reporting of aggregated verified food-borne outbreak data

It is advisable to categorise the aggregated food-borne outbreak data according to the "causative agent" and "foodstuff implicated" categories.

For example: *Campylobacter* spp. unspecified – broiler meat and products thereof
Campylobacter spp. unspecified – milk

Then in the field "More Foodstuff Information" (a free text field) one can give the breakdown of the outbreaks into different foodstuffs, if that information is available.

For example: unpasteurised milk: 2 outbreaks; pasteurised milk:1 outbreak.

For the variables "human cases", "hospitalized" and "deaths" the total number from all the outbreaks is reported.

As regards the variables "Outbreak type", "Type of evidence", "Setting", "Place of origin of problem", "Origin of foodstuffs" and "Contributory factor" one can choose one (or sometimes several) of the options in case it is shared by all the outbreaks being reported on. Otherwise the "unknown" should be chosen.

The field "Outbreaks" is used to indicate the number of aggregated outbreaks being reported on. Finally, the field "Comment" can be used to give any additional information of these aggregated outbreaks.

8. Pick lists

8.1. Causative agents

This list provides the most commonly reported causative agents but is not exhaustive. The reporting system allows including information of the species/ subspecies / serovars / serotypes / phagetypes. When reporting a toxin produced by a bacterium, please report the toxin-producing bacterium in the first level and the toxin in the second level.

Level 1	**Level 2**	**Level 3**
main menu	**submenu**	**2. submenu**
Aeromonas		
	A. caviae	
	A. hydrophila	
	A. veronii	
	Aeromonas spp., unspecified	
Aichivirus		
Anisakis		
	A. simplex	
	Anisakis spp., unspecified	
Astrovirus		
Bacillus		
	B. cereus	
	B. licheniformis	
	B. subtilis	
	Bacillus spp., unspecified	
Brucella		
	B. abortus	
	B. melitensis	
	Brucella spp., unspecified	
Calicivirus		
		norovirus (Norwalk-like virus)
		sapovirus (Sapparo-like virus)
Campylobacter, thermophilic		
	C. coli	
	C. jejuni	
		C. jejuni subsp. *doylei*
		C. jejuni subsp. *jejuni*
	C. lari	
	C. upsaliensis	
	Campylobacter spp.	
	thermophilic *Campylobacter* spp., unspecified	

Clostridium		
	C. botulinum-toxin	
	C. perfringens	
	Clostridium spp., unspecified	
Cryptosporidium		
	C. parvum	
	Cryptosporidium spp., unspecified	
Cysticerci		
	Cysticerci of *Taenia saginata*	
	Cysticerci of *Taenia solium*	
	Cysticerci spp., unspecified	
Diphyllobothrium		
	D. latum	
Enterobacter		
	E. sakazakii	
	Enterobacter spp., unspecified	
Enterovirus		
Erysipelothrix		
	E. rhusiopathiae	
	Erysipelothrix Unspecified	
Escherichia coli, pathogenic		
	E. coli spp., unspecified	
	Enteroinvasive *E. coli* (EIEC)	
	Enteropathogenic *E. coli* (EPEC)	
	Enterotoxigenic *E. coli* (ETEC)	
	Verotoxigenic *E. coli* (VTEC)	
		VTEC O100
		VTEC O100:H-
		VTEC O103
		VTEC O104
		VTEC O111
		VTEC O113
		VTEC O113:H4
		VTEC O12
		VTEC O136
		VTEC O136:H-
		VTEC O139
		VTEC O145
		VTEC O146
		VTEC O15
		VTEC O153
		VTEC O157
		VTEC O157:H

		VTEC O157:H-
		VTEC O157:H16
		VTEC O157:H18
		VTEC O157:H7
		VTEC O166
		VTEC O174
		VTEC O174:H2
		VTEC O174:H21
		VTEC O177
		VTEC O179
		VTEC O19
		VTEC O1:H10
		VTEC O2
		VTEC O21
		VTEC O22
		VTEC O26
		VTEC O26:H-
		VTEC O27
		VTEC O36
		VTEC O4
		VTEC O46
		VTEC O5
		VTEC O55
		VTEC O59
		VTEC O66:H28
		VTEC O6:H10
		VTEC O74
		VTEC O75
		VTEC O76:H19
		VTEC O79
		VTEC O8
		VTEC O84
		VTEC O88
		VTEC O91
		VTEC non-O157
		VTEC spp., unspecified
		VTEC non typable
Flavivirus		
	Tick-borne encephalitis virus (TBE)	
	flavivirus, unspecified	
Giardia		
	G. intestinalis (lamblia)	
	Giardia spp., unspecified	
Hepatitis virus		
	hepatitis A virus	
	hepatitis B virus	
Histamine		
Listeria		
	L. monocytogenes	
		L. monocytogenes O1/2

		L. monocytogenes O4
		L. monocytogenes serovar 1/2a
		L. monocytogenes serovar 1/2b
		L. monocytogenes serovar 1/2c
		L. monocytogenes serovar 3a
		L. monocytogenes serovar 3b
		L. monocytogenes serovar 4b
		L. monocytogenes, unspecified
	Listeria spp., unspecified	
Marine biotoxins		
	ciguatoxin	
	musle-paralysing toxin	
Mushroom toxins		
Mycotoxins		
Rotavirus		
Salmonella	All the serovars	S.Enteritidis and S. Typhimurium phagetypes
Sarcocystis		
	S. hominis	
	S. suihominis	
	Sarcocysti spp., unspecified	
Shigella		
	S. boydii	
	S. dysenteriae	
	S. flexneri	
	S. sonnei	
	Shigella unspecified	
Staphylococcus		
	S. aureus	
	Staphyococcal enterotoxins	
	Staphylococcus spp., unspecified	
Trichinella		
	T. T6	
	T. britovi	
	T. nativa	
	T. pseudospiralis	
	T. spiralis	
	Trichinella spp., unspecified	
Unknown		
Vibrio		
	V. cholerae	
		toxigenic *V. cholerae*
	V. parahaemolyticus	

		toxigenic *V. parahaemolyticus*
	V. vulnificus	
	Vibrio spp., unspecified	
Yersinia		
	Y. enterocolitica	
		Y. enterocolitica O:1
		Y. enterocolitica O:2,3
		Y. enterocolitica O:3
		Y. enterocolitica O:5
		Y. enterocolitica O:5,27
		Y. enterocolitica O:6
		Y. enterocolitica O:8
		Y. enterocolitica O:9
		Y. enterocolitica, unspecified
		Y. enterocolitica, non typable
	Y. pseudotuberculosis	
	Yersinia, unspecified	

8.2. Foodstuff implicated (vehicle involved)

Foodstuff, also referred to as "food", is defined as any substance or product, whether processed, partially processed or unprocessed, intended to be, or reasonably expected to be ingested by humans. Food includes drink, chewing gum and any substance, including water, intentionally incorporated into the food during its manufacture, preparation or treatment. This definition also includes drinking water and covers single food items as well as composite meals (Reg. (EC) No 178/2002).

The foodstuff implicated in the outbreak is the food considered to have been the vehicle of the causative agent or its toxins. The relevant food category can be chosen from the pick-list shown below and the exact nature of the foodstuff is described in the free text field. This description can include the type of the food, the species of origin (food animal/plant) and treatment (e.g. smoked, cooked, frozen).

Please note that all types of canned food are reported as "Canned food products" regardless of the type of product they contain (e.g. fish, meat, vegetables). This is because the canning process is the main factor influencing the safety of the product. Further information on food animal/plant species and treatment prior to canning is given in the free text field.

Code	Decode
01	Milk
02	Dairy products (other than cheeses)
03	Cheese
04	Eggs and egg products
05	Bovine meat and products thereof
06	Pig meat and products thereof
07	Sheep meat and products thereof
08	Other or mixed red meat and products thereof
09	Broiler meat (*Gallus gallus*) and products thereof
10	Turkey meat and products thereof
11	Other or unspecified poultry meat and products thereof
12	Fish and fish products
13	Crustaceans, shellfish, molluscs and products thereof
14	Vegetables and juices and other products thereof
15	Canned food products
16	Cereal products including rice and seeds/pulses (nuts, almonds)
17	Fruit, berries and juices and other products thereof
18	Drinks, including bottled water
19	Tap water including well-water
20	Sweets and chocolate
21	Bakery products
22	Herbs and spices
23	Mixed or buffet meals
88	Other foods
99	Unknown

In the following some further guidance is given regarding how to classify different foodstuffs into the pick list categories.

Milk

The following products shall be considered as drinking milk:
(a) raw milk intended for direct human consumption: milk, which has not been heated above 40 °C or subjected to treatment having equivalent effect and intended to consumed raw;
(b) pasteurised milk: milk heat treated to destroy disease-causing bacteria:
c) UHT (Ultra High Temperature) milk: milk heated for a short time, around 1-2 seconds, at a temperature exceeding 135°C, which is the temperature required to kill spores in milk.

Please specify the species of origin of the milk (such as cow, goat, sheep) as well as the treatment of the milk in the free text field (for example: "raw goat milk", "pasteurised cow milk" or "UHT milk").

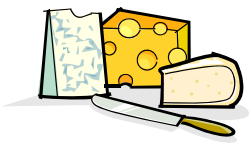
Dairy products (other than cheese)

Dairy products are defined as processed products resulting from the processing of raw milk or from the further processing of such processed products (Reg. (EC) No 853/2004).
Examples for dairy products are cream, buttermilk, milk powder, butter, yogurt, ice cream and puddings made from milk.

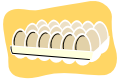
Please specify the species of the origin of the milk (such as cow, goat, sheep) as well as the treatment given to the product in the free text field (for example: "low-fat yogurt made of pasteurised cows' milk").

Cheese

Cheese is the ripened or unripened soft, semi-soft, hard, or extra-hard product of milk, which may be coated, and in which the whey protein/casein ratio does not exceed that of milk, obtained by coagulating of milk or protein of milk and/or products obtained from milk which give an end-product with similar characteristics.



Please specify the species of origin of the milk (such as cow, goat, sheep) as well as whether the cheese was made from raw, low heat-treated milk or pasteurised milk. Also the main type of the cheese (hard, semi-soft or soft) and if possible also the detailed type (e.g. Camembert), if possible, in the free text field. For example: "soft cheese made from raw goats' milk".

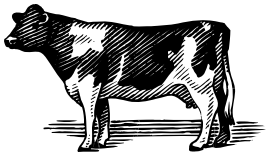


Eggs and egg products

Eggs are defined as eggs in shell that are produced by farmed birds and are fit for direct human consumption or for the preparation of egg products.

Egg products are processed products resulting from the processing of eggs, or of various components or mixtures of eggs, or from the further processing of such processed products (Reg. (EC) No 853/2004). Examples of egg products are:

Liquid egg products: The purified whole egg, egg yolk or egg white is pasteurized and chemically preserved (e.g., by addition of salt).
Frozen egg products: The purified whole egg, egg yolk or egg white is pasteurized and frozen.
Dried and/or heat coagulated egg products: Sugars are removed from the purified whole egg, egg yolk or egg white, which is then pasteurized and dried.
Preserved eggs, including alkaline, salted, and canned eggs: Includes traditional Oriental preserved products, such as salt-cured duck eggs, and alkaline treated "thousand-year-old-eggs".
Egg-based desserts: Includes ready-to-eat products and products to be prepared from a dry mix. Examples include: flan and egg custard. Also includes custard fillings for fine bakery wares (e.g., pies).[1]



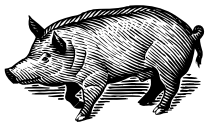
Bovine meat and products thereof

Bovine meat is defined as edible parts of domestic bovine animals (including *Bubalus* and *Bison* species), including blood (Reg. (EC) No 853/2004).
Please also so note the following related definitions in the EU-legislation, which can help you to specify the foodstuff implicated in the free text field.
Fresh meat is meat that has not undergone any preserving process other than chilling, freezing or quick-freezing, including meat that is vacuum-wrapped or wrapped in a controlled atmosphere (Reg. (EC) No 853/2004).
Meat preparations are defined as fresh meat, including meat that has been reduced to fragments, which has had foodstuffs, seasonings or additives added to it or which has undergone processes insufficient to modify the internal muscle fibre structure of the meat and thus to eliminate the characteristics of fresh meat (Reg. (EC) No 853/2004).

Minced meat is boned meat that has been minced into fragments and contains less than 1 % salt (Reg. (EC) No 853/2004), for example steak tartare.

Meat products are defined as processed products resulting from the processing of meat or from the further processing of such processed products, so that the cut surface shows that the product no longer has the characteristics of fresh meat (Reg. (EC) No 853/2004).
Examples for bovine meat and products thereof are: beef steak, stewing steak, grilled liver, roast beef, sausages and steak tartare.

Please specify the treatment (e.g. raw, cooked, grilled) and add the specifications of the product in the free text field (for example: "fermented, air-dried cured sausage Italian style".



Pig meat and products thereof

Pig meat is defined as edible parts of domestic porcine animals, including blood (Reg. (EC) No 853/2004). For the definition of meat products please see "Bovine meat and products thereof".

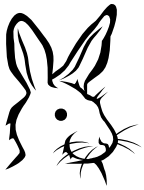
Sheep meat and products thereof

Sheep meat is defined as edible parts of domestic ovine animals, including blood (Reg. (EC) No 853/2004).

For the definition of meat products please see "Bovine meat and products thereof".

Other or mixed red meat and products thereof

Other red meat is meat from species other than birds that are not mentioned above such as wild game and farmed game.



Wild game includes wild ungulates and lagomorphs, as well as other land mammals that are hunted for human consumption.

Meat from wild boars is classified in this category, and in woulf desirable that it would be indicated in the comment section, that it was question of wild boar meat.

Farmed game includes farmed ratites and farmed land mammals other than those referred to as "*Domestic ungulates"* (Reg. (EC) No 853/2004).

Mixed red meat is a mix of red meat from different species, e.g. meatballs consisting of bovine and pig meat.

For the definition of meat products please see "Bovine meat and products thereof".

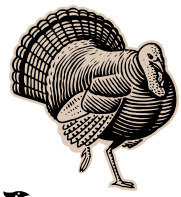
Broiler meat (Gallus gallus) and products thereof

Broiler meat is defined as edible parts of domestic chicken (*Gallus gallus*), including blood.

For the definition of meat products please see "Bovine meat and products thereof".

Please note:
In this context also meat from hens (e.g. spent hens) is regarded as broiler meat.

Turkey meat and products thereof



Turkey meat is defined as edible parts of domestic turkeys, including blood.

For the definition of meat products please see "Bovine meat and products thereof".

Other or unspecified poultry meat and products thereof

Other poultry meat is defined as edible parts of 'poultry', including blood. 'Poultry' are farmed birds, including birds that are not considered as domestic but which are farmed as domestic animals, with that exception of ratites which are considered as 'farmed game' (Reg. (EC) No 853/2004). In this case all poultry EXCEPT *Gallus gallus* and turkey. Examples for this category are duck, goose, pheasant, guinea fowl and ostrich.

For the definition of meat products please see "Bovine meat and products thereof".

Fish and fish products

Fish as a food describes the edible parts of water-dwelling, cold-blooded vertebrates with gills.

Examples for edible fish are salmon, trout, tuna, eel, silver carp and anchovy.
Examples for fish products are frozen fish fingers, roe and smoked salmon.

Please specify the fish species (e.g. salmon, herring) as well as the treatment (e.g. smoked, raw, cooked) in the free text field (for example: "cold-smoked salmon").

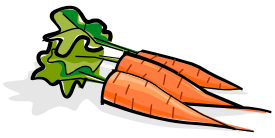
Crustaceans, shellfish, molluscs and products thereof

Shellfish is a broad term for all aquatic animals that have a shell of some kind. Shellfish are separated into two basic categories - crustaceans and molluscs.[2] However the EU definition of shellfish includes only bivalve and gastropod molluscs (Council Directive 79/923/EEC).
Examples for edible shellfish are sea cucumber and sea urchin.[3]
Crustaceans are one of two main classifications of shellfish (the other being mollusc), crustaceans have elongated bodies and jointed, soft (crust like) shells [2].

Examples for edible crustaceans are shrimp (e.g. Atlantic white shrimp), prawn (e.g. Giant river prawn), lobster (e.g. European lobster), crayfish (e.g. European crayfish), and crab (e.g. Edible crab).
Molluscs are animals with a soft body, internal or external shell, muscular foot and/or tentacles.[4] Molluscs are divided into three groups: gastropods (also called *univalves*); bivalves (including live bivalve molluscs); and cephalopods [2].
Examples for edible molluscs are abalone (sea ear), snail (e.g. vineyard snail) and clam.
Examples for edible bivalve molluscs are mussels and oysters.

Please specify the species as well as the treatment (e.g. live, cooked) in the free text field (for example: "deep-fried shrimps").

Vegetables and juices and other products thereof



Vegetables are plants or parts of plants cultivated for food. Some foods that are botanically fruits, such as tomatoes and cucumbers, and seeds, such as peas and beans, are included with the vegetables; some plants, such as rhubarb, are classed as fruit, although they are not botanically fruits. The distinction in popular usage depends on whether they are eaten as savoury (vegetables) or sweet (fruit) dishes.
Examples for vegetables are cauliflower, broccoli, pea, cucumber, lentil, avocado and garlic. "Sea vegetables" like sea lettuce and seaweed are also part of this group.
Vegetable juice is the juice obtained from vegetables and usually made from carrots, beets, pumpkin, and tomatoes.

Please specify the plant species or cultivar group as well as the treatment (e.g. raw, cooked juice) in the free text field (for example: "raw iceberg lettuce").

Canned food products

Food preserved by canning; the process of preserving food by sterilization and cooking in a sealed metal can, which destroys bacteria and protects from recontamination. [5]

Please specify the canned food product (e.g. meat, fish, vegetable) in the free text field (for example: "baked beans, canned").

Cereal products including rice, and seeds / pulses (including nuts, almonds)

Cereal is grass whose starchy grains are used as food for example: wheat; rice; rye; oats; maize; buckwheat; millet; grain. Foodstuff prepared from the starchy grains of cereal grasses is also referred to as cereal. [6]

Please specify the cereal products (e.g. plant species), treatment, (cut, precut, cooked) in the free text field.

Fruit, berries and juices and other products thereof

Fruit is defined as fruit, fresh or preserved by chilling, sound, free from deterioration, containing all the essential constituents needed for the production of fruit juices and nectars and of a suitable degree of ripeness. Tomatoes are not regarded as fruit (Council Directive 93/77/EEC).

Fruit purée is the fermentable but unfermented product obtained by sieving the edible part of whole or peeled fruit without removing the juice (Council directive 93/77/EEC).

Fruit juice is defined as:

(a) The juice obtained from fruit by mechanical processes, fermentable but unfermented, having the characteristic colour, aroma and flavour typical of the juice from the fruit from which it comes.

In the case of citrus fruits, the fruit juice shall come from the endocarp; lime-juice, however, may be obtained from the whole fruit, by suitable production processes whereby by proportion of constituents of the outer part of the fruit is reduced to a minimum.

(b) The product obtained from concentrated fruit juice by:

the restoration of the proportion of water extracted from the juice when it was concentrated, the water which is added having the appropriate characteristics, particularly from the chemical, microbiological and organoleptic viewpoints, for guaranteeing the essential qualities of the juice, and the restoration of its aroma by means of the volatiles collected during the concentration of the fruit juice in question or from the juice of fruits of the same kind, and which has organoleptic and analytical characteristics equivalent to those of juice obtained from fruit of the same kind in accordance with (a) (Council Directive 93/77/EEC).

Concentrated fruit juice is a product obtained from fruit juice by the physical removal of a specific proportion of the water content. If the product is for direct consumption, the reduction in volume shall not be less than 50 % (Council directive 93/77/EEC).

Fruit nectar is the unfermented but fermentable product obtained by the addition of water and sugars to fruit juice, concentrated fruit juice, fruit purée, concentrated fruit purée or to a mixture of these products (Council Directive 93/77/EEC).

Drinks, including bottled water

Drinks are any liquids suitable for drinking, also called beverage.

Juice Drinks are drinks made from fruit juice plus other ingredients, such as water, flavourings, artificial sweeteners, colourings and preservatives. Fruit juice drink can contain as little as 5% juice.

Soft drinks are non-alcoholic, flavoured, carbonated beverages, usually commercially prepared and sold in bottles or cans.

Alcoholic drinks are made by fermenting fruit juices, sugars, and fermentable carbohydrates with yeast to form alcohol. These include beer, cider, and perry, 4-6% alcohol by volume; wines, 9-13% alcohol; spirits (e.g. brandy, gin, rum, vodka, whisky) made by distilling fermented liquor, 38-45% alcohol; liqueurs made from distilled spirits, sweetened and flavoured, 20-40% alcohol; and fortified wines (aperitif wines, madeira, port, sherry) made by adding spirit to wine, 18-25% alcohol.

The definition of drinks also includes hot drinks like coffee and tea.[7]

Please note:
In the context of the food-borne outbreak system the category "Drinks, including bottled water" does not include milk, fruit juice, fruit nectar, vegetable juice and tap water, but it includes fruit-flavoured drinks and juice drinks.

Bottled water is sold for human consumption. It is sealed in a sanitary container and must meet all regulations for drinking water. Bottled water contains no sweeteners or chemical additives and must be calorie and sugar free. [8]

"Natural mineral water" means microbiologically wholesome water originating in an underground water table or deposit and emerging from a spring tapped at one or more natural or bore exits. Before water is recognised as a natural mineral water, it has to be demonstrated that it:

(a) is obtained from an underground source;
(b) has a stable composition;
(c) is protected from all sources of pollution;
(d) meets chemical and microbiological safety standards; and
(e) is not subject to treatment which affects its characteristic properties.

Natural mineral water is bottled at source and is sold under one trade description. The name of the source and its place of exploitation are stated on the label together with a statement of the analytical composition (EC Directives 80/777, 96/70 and 80/778).

In contrast, recognition of a spring water underground source is not required. Spring water meets the same chemical and microbiological standards as tap water and, currently, can be subject to treatment. However, like NMW, spring water is bottled at source, sold under one trade description and the name of the source and its place of exploitation are included in labelling (EC Directives 80/777, 96/70 and 80/778).

Bottled drinking water which is not restricted to a particular type of source comprises bottled water other than natural mineral water and spring water and includes water referred to as "table water". Bottled drinking water is required to comply with the same compositional and microbiological standards as tap water (EC Directives 80/777, 96/70 and 80/778).

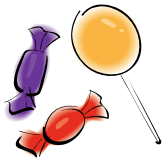
Please note:
Soda water, seltzer water and tonic water are considered soft drinks, not bottled waters. Kindly specify in the free text field which sub-category of drinks has been the vehicle of the outbreak.

Natural mineral water can be clearly distinguished from ordinary drinking water (EC Directive 80/777):
(a) by its nature, which is characterized by its mineral content, trace elements or other constituents and, where appropriate, by certain effects;
(b) by its original state,
both characteristics having been preserved intact because of the underground origin of such water, which has been protected from all risk of pollution.

Tap water including well-water

Tap water or ordinary drinking water shall mean:
All water either in its original state or after treatment, intended for drinking, cooking, food preparation or other domestic purposes, regardless of its origin and whether it is supplied from a distribution network, from a tanker, or in bottles or containers (Council directive 98/83/EC).

Please note:
In this context tap water including well-water does not include water in bottles. Water in bottles is included in the item 'Drinks, including bottled water'.
Please specify in the free text field whether the water was treated or untreated.



Sweets and chocolate

Sweets are foods, such as candy, milk-free puddings, or preserves, which are high in sugar content and milk-free puddings.[9]
Candy, specifically sugar candy, is a confection made from a concentrated solution of sugar in water, to which a variety of flavourings and colorants is added. Some candy, like marshmallows and gummy bears, may contain gelatine.
Preserves refer to fruit, or vegetables, that have been prepared, canned or jarred for long term storage. Examples for preserves are jam and jelly.

Chocolate is obtained by an adequate manufacturing process from cocoa materials which may be combined with milk products, sugars and/or sweeteners, and other additives. Other edible foodstuffs, excluding added flour and starch and animal fats other than milk fat, may be added to form various chocolate products (CODEX STAN 87-1981, Rev. 1 - 2003).[10]

Bakery products

include bread and ordinary bakery wares (all types of non-sweet bakery products and bread-derived products) and sweet, salty and savoury fine bakery wares (ready-to-eat products as well as mixes for preparing fine baked goods).[11] [12]

Bread and ordinary bakery wares

The category bread contains the main subcategories white bread, brown bread and wholemeal bread.

Crackers, excluding sweet crackers: The term "cracker" refers to a thin, crisp wafer, usually of unsweetened dough. Flavoured crackers (e.g., cheese flavoured). Examples include: soda crackers, rye crisps, and matzohs.

Other ordinary bakery products: Includes all other ordinary bakery wares, such as bagels, pita, English muffins, cornbread and biscuits. The term "biscuit" in this category refers to a small cake of shortened bread, leavened with baking powder or baking soda. It does not refer to the British "biscuit," which is a "cookie" or "sweet cracker" included in the category Cakes, cookies and pies.

Bread-type products, including bread stuffing and bread crumbs: Includes bread-based products such as croutons, bread stuffing and stuffing mixes, and prepared doughs (e.g., for biscuits).

Fine bakery wares (sweet, salty and savoury) and mixes:

Cakes, cookies and pies (e.g., fruit-filled or custard types): The term "sweet cracker" or "sweet biscuit" used in this category refers to a cookie-like product that may be eaten as a dessert. Examples include: butter cake, cheesecake, fruit-filled cereal bars, pound cake, moist cake, western cakes, moon cakes, sponge cake, fruit-filled pies (e.g., apple pie), oatmeal cookies, sugar cookies and British "biscuits" (cookies or sweet crackers).

Other fine Bakery products: Includes products that may be eaten as a dessert or as breakfast. Examples include: doughnuts, sweetrolls, scones, and muffins, pancakes, waffles, filled sweet buns, Danish pastry, wafers or cones for ice cream, flour confectionery, and trifles. This category also includes tiramisu.

Please specify the subcategory (e.g. fine bakery wares > pies) and, if existent, the filling (e.g. fruit, custard, raw eggs) in the free text field (for example: "fine bakery product containing pasteurised dairy products and raw eggs, Tiramisu").

Herbs and spices

Herbs are the aromatic leaves of plants without woody stems that grow in temperate zones. Spices are seasonings obtained from the bark, buds, fruit or flower parts, roots, seeds or stems of various aromatic plants and trees. [13]

Herbs and spices are usually derived from botanical sources, and may be dehydrated, and either ground or whole. Examples of herbs include basil, oregano and thyme. Examples of spices include cumin and caraway seeds. Spices may also be found as blends in powder or paste form. Examples of spice blends include chili seasoning, chili paste, curry paste, curry roux, and dry cures or rubs that are applied to external surfaces of meat or fish. [14]

Mixed or buffet meals

Mixed meals are meals composed of various foods, for example paella, risotto, curries and nasi goring. This category also includes miscellaneous foodstuffs served on one plate.

A buffet meal is a meal at which guests serve themselves from various dishes displayed on a large table. [15]

Please select this category also if it was not possible to narrow the suspected food down to an individual food or ingredient during the investigation of the food-borne outbreak.

Other foods

This category should be chosen if the implicated food is none of those mentioned above. In this case, it should be specified in the free text field.

Unknown

Please select 'Unknown' if it was not possible to identify the food vehicle responsible for the food-borne outbreak.

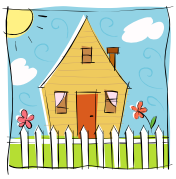
8.3. Setting

The setting of the outbreak is the place of exposure to the implicated food. This is the location where the food was consumed or where the final stages of preparation of the suspect food took place, *e.g.* cafe/restaurant, institution, home.

Please specify the location where the food was consumed, hence the place of exposure. Choose from one of the items of the following pick list:

Code	Decode
01	Household
02	Restaurant/café/pub/bar/hotel
03	Mobile retailer / market / street vendor
04	Take-away or fast food outlet
05	Canteen or workplace catering
06	Hospital/medical care facility
07	Residential institution (nursing home, prison, boarding schools)
08	School, kindergarten
09	Temporary mass catering (fairs, festivals)
10	Camp, picnic
11	Aircraft/ ship/ train
88	Other
99	Unknown

Household



If the incriminated food was consumed at home, please choose 'household' as setting.
Household is defined as one person living alone or a group of persons (who may or may not be related) living at the same address with common housekeeping. [16]

Please note:
If the incriminated food was bought at a take-away or delivered by a restaurant and eaten at home, please choose 'take-away or fast food outlet' as setting. If the incriminated food for a private party was provided by a catering service and eaten at home, please choose 'Household' as setting and 'Catering service/restaurant' as place of origin of problem, if the contamination or mishandling of the food took place at the catering service.
The same rule applies for 'meals on wheels", so please choose 'Household' as setting and 'Catering service/restaurant' as place of origin of problem.

Restaurant/café/pub/bar/hotel

If the incriminated food was served and eaten in a restaurant, please choose 'Restaurant/café/pub/bar/hotel' as setting.

A restaurant is an establishment where refreshments or meals are served to paying guests.
A café is a small and informal establishment serving various refreshments (as coffee) and usually featuring a limited menu.
Pub (British tavern) consists of a building with a bar and public rooms. It serves alcoholic beverages for consumption on the premises and often provides light meals. Synonyms are: public house, saloon, pothouse, gin mill.
A bar is a room or establishment where alcoholic drinks and food are served over a counter.

Mobile retailer / market / street vendor

If the incriminated food was served or bought at a mobile food establishment, please choose 'mobile retailer / market / street vendor' as setting.

A mobile retailer is a retail food establishment that is readily movable, a motorized vehicle, or a towed wheeled vehicle designed and equipped to serve food. Generally, a mobile food unit does not have a fixed sales location but operates in a variety of locations. [17]

Market refers to the location where goods are traded, sometimes known as a marketplace, or to a street market. A marketplace is a location where goods and services are exchanged. The traditional market square is a city square where traders set up stalls and buyers browse the merchandise. A street market is an outdoor market such as traditionally held in a market square in a market town. Street markets are often held only on particular days of the week. Very similar markets or bazaars can also be found in large enclosed spaces, instead of on a street. [18]

A street vendor is a person, or persons, travelling on public streets, public sidewalks, public property, or private streets, and carrying, conveying or transporting such items as food, beverages, offering and exposing the same for sale. [19]

The difference between mobile retailer and catering:
In contrast to the mobile retailer a catering service may prepare the food on site (e.g. home, rented room), i.e., made completely at the event, or the caterer may choose to bring prepared food and put the finishing touches on once it arrives. Additionally an event caterer serves food with waiting staff at dining tables or sets up a self- serve buffet.

Take-away or fast food outlet

If the incriminated food was bought or served in a take-way or fast food outlet, please choose 'take-away or fast food outlet' as setting.
Take-away is defined as an outlet where refreshments and meals are sold to customers. The food will be eaten either on the spot or elsewhere. Food that is delivered by a restaurant to a customer in order to be consumed in another place than the restaurant is also classified as a take-away.

Canteen or workplace catering

If the incriminated food was served in a canteen, please choose 'canteen or workplace catering' as setting.
A canteen or workplace catering is a private cafe, restaurant, or cafeteria at a school, office, or military base. It sells food and personal items to personnel at an institution or school. Usually large quantities of food are prepared in advance and only a limited choice of meals available.

Hospital / medical care facility

If the incriminated food was served in a hospital or medical care facility, please choose 'hospital / medical care facility' as setting.
A hospital is an institution that provides medical, surgical, or psychiatric care and treatment for the sick or the injured.
The definition of medical care facilities includes various institutions such as day clinics.

Residential institution (nursing home, prison, boarding schools)

If the incriminated food was served in a residential institution, please choose 'residential institution' as setting.

A residential institution is defined as an educational or health care facility with integral residential accommodation, this includes nursing homes, prisons and boarding schools. [20]

Nursing homes, also called "homes for the elderly", establishments with three or more beds that provide nursing or personal care services to the older population, infirm, or chronically ill. A prison that is a correctional institution where persons are accommodated while on trial or for punishment and a boarding school which is a private school where students are taught as well as lodged and fed.

School, kindergarten

If the incriminated food was served in an educational establishment, please choose 'school, kindergarten' as setting.

A school is an educational institution where the pupils are educated and fed.

A kindergarten is a school or class intended for young children usually age four to six as a prominent part of preschool education. It may refer to nursery school (pre-school) or day care.

Temporary mass catering (fairs, festivals)

A temporary mass catering is the food service provided at large fairs or festivals.

Please note:
If the incriminated food served at a festival and the food service was provided by different mobile retailers or street vendors, please chose 'Mobile Retailer / market / street vendor' as a setting.

Camp, picnic

If the incriminated food was served at a camp or picnic, please choose 'camp, picnic' as setting.

A camp is a place where tents, huts, or other temporary shelters are set up as temporary lodging for example by scouts or travellers, e.g. summer vacation camp. This category does not include camping.

A picnic is an excursion or outing with food provided by members of the group and eaten in the open.

Aircraft / ship / train

If the incriminated food was served on aircrafts, ships, trains, buses or coaches, please choose 'aircraft / ship / train' as setting.

Other

Every setting that is not listed above.

Unknown

The setting is not identified or ascertained.

8.4. Place of origin of problem

Place of origin of problem is the place, other than setting, where the mishandling of the food took place and/or where the contamination occurred.

Code	Decode
01	Travel abroad
02	Slaughterhouse
03	Farm (primary production)
04	Processing plant
05	Retail sale outlet
06	Catering services /restaurant
07	Take-away
08	Household / domestic kitchen
09	Transport
10	Water treatment plant
11	Water distribution system
12	Water source
88	Other
99	Unknown

Travel abroad

If the infection was acquired on a journey abroad (out of one's own country), please choose 'travel abroad' as place of origin of problem.

Slaughterhouse

If the contamination was acquired or the mishandling occurred during the slaughtering, chilling or dressing of animals, please choose 'slaughterhouse' as place of origin of problem.
A slaughterhouse is defined as an establishment used for slaughtering and dressing animals, the meat of which is intended for human consumption (Reg. (EC) No 853/2004). Fishing vessels are also part of this category.

Farm (primary production)

If the mishandling or contamination of the incriminated food occurred on the level of primary production, please choose 'farm (primary production)' as place of origin of problem.
Primary production means the production, rearing or growing of primary products including harvesting, milking and farmed animals' production prior to slaughter. It also includes hunting and fishing and the harvesting of wild products (Reg. (EC) No 178/2002). Thus, fishing grounds are also included in this category.
For example a farm is a place of primary production and the basic unit in agriculture. It is a section of land devoted to the production and management of food, either produce or livestock.

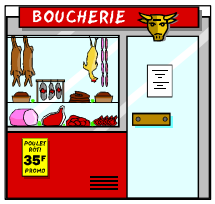
Processing plant

If the contamination was acquired in a processing plant, please choose 'processing plant' as place of origin of problem.
Processing is defined as any action that substantially alters the initial product, including heating, smoking, curing, maturing, drying, marinating, extraction, extrusion or a combination of those processes (Reg. (EC) No 852/2004), it also includes packing, labelling and storing.
A processing plant is a commercial plant that manufactures, packages, labels or stores food for human consumption and does not provide food directly to a consumer; quality

control and production supervision. A typical example for a processing plant is a dairy, where milk is converted for example into butter, yogurt or cheese.

Retail sale outlet

If the mishandling or contamination of the incriminated food occurred in a retail outlet, please choose this option.



Retail means the handling and/or processing of food and its storage at the point of sale or delivery to the final consumer, and includes supermarkets, retail sale outlets and shops.

A retail sale outlet is defined as a place of business for retailing goods, e.g. grocer, supermarket, retail store, discounter, department store and shopping centre.

Catering services / restaurant

If the mishandling or contamination of the incriminated food occurred in a restaurant or during an event where food was provided by a catering service, please choose 'catering services / restaurant' as place of origin of problem.

A catering service provides food service at a remote site, for example takeout party service often offered by supermarkets.

A restaurant is an establishment where refreshments or meals are served to paying guests.

Please note:
If the incriminated food was bought at a restaurant and consumed at home and the contamination/mishandling of the food has occurred at the restaurant please select in this case "Take-away" as place of origin of problem and "Household" as setting.

Take-away

Take-away is defined as a food outlet which sells refreshments and meals which are eaten elsewhere. The food outlet may or may not provide table service. If the mishandling or contamination of the incriminated food occurred in a take-away please choose 'take-away' as place of origin of problem.

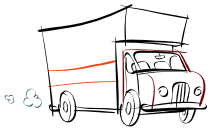
Household / domestic kitchen

If the mishandling or contamination of the incriminated food occurred during preparation of food in a private home, please choose 'household / domestic kitchen' as place of origin of problem.

A domestic kitchen is a room or an area in a home (household) used for preparing and cooking food.

Transport

If the mishandling or contamination of the incriminated food occurred during the transport of the food, please choose 'transport' as place of origin of problem.



Transport is defined as moving of goods for a commercial purpose.

Water treatment plant

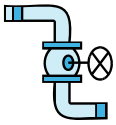
If the mishandling or contamination of the incriminated food was acquired in a water treatment plant, please choose 'water treatment plant' as place of origin of problem.

A water treatment plant is defined as: (1) Plant where, through physical-chemical and biological processes, organic matter, bacteria, viruses and solids are removed from residential, commercial and industrial wastewaters before they are discharged in rivers, lakes and seas. (2) Installations to render wastewater, sludge, storm water or cooling water fit to meet applicable environmental standards or other quality norms for recycling or reuse. [21]

Water distribution system

If the contamination was acquired in the water distribution system, please choose 'water distribution system' as place of origin of problem.

A water distribution system is the system of pipes supplying water to communities and industries. [22]



Domestic distribution system shall mean the pipe work, fittings and appliances which are installed between the taps that are normally used for human consumption and the distribution network but only if they are not the responsibility of the water supplier, in its capacity as a water supplier, according to the relevant national law (Council Directive 98/83/EC).

Water source

If the contamination was acquired in a water source, please choose 'water source' as place of origin of problem.

A water source is the basic origin of water, either a surface source (such as a lake, river, or reservoir) or a subsurface source (such as a well) before treatment and pumping. [23]

Other

If the mishandling or contamination of the incriminated food occurred in a place that is not listed above, please choose 'other' as place of origin of problem.

Other is defined as every place of origin of problem that is not listed above.

Unknown

The place of origin of problem is not identified.

8.5. Contributory factor

Contributory factors are factors that contributed to the occurring of the food-borne outbreak. These may include deficiencies in food handling or contaminated raw materials. If appropriate, more than one factor can be chosen.

Code	Decode
01	Unprocessed contaminated ingredient
02	Storage time/temperature abuse
03	Inadequate heat treatment
04	Inadequate chilling
05	Cross-contamination
06	Infected food handler
07	Water treatment failure
88	Other
99	Unknown

Unprocessed contaminated ingredient

Unprocessed contaminated ingredients are raw ingredients contaminated with the causative agents at the primary production level, during processing or transportation. The contamination occurs before preparation and consumption. Examples are eggs or meat that are contaminated with *Salmonella.* Also, herbs that may have been contaminated with microbes during irrigation or by wild animals are often used in salads or added to ready-to-eat meals without further heating.

Storage time / temperature abuse

Please select this category if the time/temperature abuse occurred during the storage of food. This applies to mistakes during hot holding of food or during the cold chain.
If the food is held hot at an improper holding temperature (e.g.< 60°C), for an unsuitable period of time the likelihood of multiplication of microorganisms present on/in the food is high.

The cold chain, on the other hand, is the sequence of temperature controlled operations after initial harvesting, and including chilled transport, cooling during and after production, chilled storage distribution and retailing, through to domestic storage until preparation for final consumption. If there is for example an interruption within the cold chain it can lead to a multiplication of microorganisms present on/in the food. Also, if food is stored in large containers or stacked too tightly the core of the food may not reach the appropriate cooling temperature.

Inadequate heat treatment

Please select this category if the inadequate heat treatment occurred during the cooking or reheating of the incriminated food. This is the case if food is cooked at an inadequate temperature (for example <70°C) and/or for an inadequate period of time or the heat treatment of the core of the food is insufficient to kill the pathogenic microorganims.
Inadequate heat treatment in terms of cooking can be defined as foods that are cooked at inappropriate temperatures for a suitable period of time, or cooked at appropriate temperature for an unsuitable period of time or cooked at an inappropriate temperature for an unsuitable period of time.

Inadequate chilling

Chilling is the process of cooling the food. Food is chilled inadequately if the core temperature of the food remains for example higher than 2 - 8 °C for too long, which can result in multiplication of microorganisms. Please note that the sufficient chilling

temperature is dependent on the type of the food. For example there are slight differences between minced meat and cheese. It is important that the core of the food will reach the appropriate cold temperature as quickly as possible.

Cross-contamination

A cross-contamination is the contamination occurring during preparation for consumption of a food item by direct or indirect contact with another food item, equipment and work surfaces including hands.

For example, raw fruits and vegetables can contaminate cooked foods if they are not properly cleaned. Also juices from raw meat and poultry which come in contact with ready-to-eat foods can contaminate the cooked foods. Unwashed hands, unclean utensils and food contact surfaces result in a cross-contamination of food if that food is handled on these surfaces, with these utensils or processed by unwashed hands.

Infected food handler

An infected food handler is defined as cook or kitchen worker with a confirmed infection (regardless of symptomatic or asymptomatic infection) transmitting the causative agent onto food. In practice it is often impossible to differentiate whether the infection of the food handler occurred first and is the source of infection or if the food handler acquired the infection from the food. Please choose this category only if it is likely that the infected food handler is the source of infection.

Water treatment failure

A failure in the water treatment system is leading to contamination in the water supply. Water treatment failures can have their origin in different areas like a failure of water treatment or disinfection, contamination of the water supply; or clusters of illness potentially due to the former.

Other

'Other' should be chosen if the contributory factor identified during the outbreak investigation is not listed in the pick-list.

Unknown

This option should be picked if no contributory factor has been identified during the investigation of the outbreak.

8.6. List of references

[1] http://www.codexalimentarius.net/gsfaonline/foods/index.html?expand=165
[2] http://www.answers.com
[3] http://en.wikipedia.org
[4] http://fishspecies.tripod.com/glossary.html
[5] http://www.answers.com/canned+food?cat=health
[6] http://wordnet.princeton.edu/perl/webwn?s=cereal
[7] http://www.answers.com/topic/liquid-courage?cat=health
[8] http://www.cbwa-bottledwater.org/en/definitions.htm
[9] http://www.answers.com/sweets.
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[11] http://www.codexalimentarius.net
[12] http://www.codexalimentarius.net/gsfaonline/foods/details.html?id=113
[13] http://www.yankeegrocery.com/spice_mill/yhspgloss.html
[14] http://www.codexalimentarius.net/gsfaonline/foods/details.html?id=192
[15] http://www.thefreedictionary.com
[16] http://www.southampton.gov.uk/environment/development-control/planning-terms.asp
[17] http://www.jeffco.us/jeffco/health_uploads/ehs/forms/form3200_mobilefood_kiosk_plan_review.pdf
[18] http://en.wikipedia.org/wiki/Market
[19] http://www.ci.newberg.or.us/website/Economic%20Development/Business%20Permits/Street_Vendor.pdf
[20] http://www.south-ayrshire.gov.uk/LocalPlan/glossary.htm
[21] http://glossary.eea.europa.eu/EEAGlossary/W/waste_water_treatment_plant
[22] http://glossary.eea.europa.eu/EEAGlossary/W/water_distribution_system
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Task Force on Zoonoses Data Collection

Andrea Ammon, Alenka Babusek, Marta Bedriova, Karin Camilleri, Marianne Chriel, Georgi Chobanov, Ingrid Dan, Jürg Danuser, Kris De Smet, Sylvie Francart, Matthias Hartung, Birgitte Helwigh, Merete Hofshagen, Patrícia Inácio, Sarolta Idei, Elina Lahti, Lesley Larkin, Peter Much, Edith Nagy, Lisa O'Connor, Rob Van Oosterom, Jacek Osek, José Luis Paramio Lucas, Antonio Petrini, Melanie Picherot, Christodoulos Pipis, Saara Raulo, Antonia Ricci, Petr Šatrán, Joseph Schon, Jelena Sõgel, Snieguole Sceponaviciene, Ana María Troncoso González, Kilian Unger, Luc Vanholme, Dimitris Vourvidis, Nicole Werner-Keišs.