European Food Safety Authority

ZOONOSES MONITORING

Bosnia and Herzegovina

TRENDS AND SOURCES OF ZOONOSES AND ZOONOTIC AGENTS IN FOODSTUFFS, ANIMALS AND FEEDINGSTUFFS

including information on foodborne outbreaks, antimicrobial resistance in zoonotic and indicator bacteria and some pathogenic microbiological agents

IN 2018

PREFACE

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/99/ EC*. The information has also been forwarded to the European Food Safety Authority (EFSA).

The report contains information on trends and sources of zoonoses and zoonotic agents in Bosnia and Herzegovina during the year 2018.

The information covers the occurrence of these diseases and agents in animals, foodstuffs and in some cases also in feedingstuffs. In addition the report includes data on antimicrobial resistance in some zoonotic agents and indicator bacteria as well as information on epidemiological investigations of foodborne outbreaks.
Complementary data on susceptible animal populations in the country is also given. The information given covers both zoonoses that are important for the public health in the whole European Union as well as zoonoses, which are relevant on the basis of the national epidemiological situation.
The report describes the monitoring systems in place and the prevention and control strategies applied in the country. For some zoonoses this monitoring is based on legal requirements laid down by the European Union legislation, while for the other zoonoses national approaches are applied.

The report presents the results of the examinations carried out in the reporting year. A national evaluation of the epidemiological situation, with special reference to trends and sources of zoonotic infections, is given. Whenever possible, the relevance of findings in foodstuffs and animals to zoonoses cases in humans is evaluated.
The information covered by this report is used in the annual European Union Summary Reports on zoonoses and antimicrobial resistance that are published each year by EFSA.

The national report contains two parts: tables summarising data reported in the Data Collection Framework and the related text forms. The text forms were sent by email as pdf files and they are incorporated at the end of the report.

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* Directive 2003/ 99/ EC of the European Parliament and of the Council of 12 December 2003 on the monitoring of zoonoses and zoonotic agents, amending Decision 90/ 424/ EEC and repealing Council Directive 92/ 117/ EEC, OJ L 325, 17.11.2003, p. 31

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ANIMAL POPULATION TABLES

Table Susceptible animal population

Animal species	Category of animals	Population animal
Cattle (bovine animals)	Cattle (bovine animals)	445,000
	Cattle (bovine animals) - dairy cows and heifers	272,000
Gallus gallus (fowl)	Gallus gallus (fowl) - laying hens	5,037,000
Goats	Goats	73,000
Pigs	Pigs	548,000
Sheep	Sheep	1,017,000
Solipeds, domestic	Solipeds, domestic - horses	16,000

DISEASE STATUS TABLES

DISEASE STATUS TABLES

PREVALENCE TABLES

Table LISTERIA in food

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Sample weight	Sample weight unit	Sampling Details	Total units tested	Total units positive	Method	Zoonoses	N of units tested	N of units positive
Not Available	Other processed food products and prepared dishes - Restaurant or Cafe or Pub or Bar or Hotel or Catering service - Not Available - Not Available - Monitoring - Official sampling - Objective sampling	single (food/feed)	25	Gram	N_A	32	2	detection	Listeria monocytogenes	32	2

Table Salmonella:SALMONELLA in food

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Sample weight	Sample weight unit	Sampling Details	Method	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Meat from other animal species or not specified - Retail - Not Available - Not Available - Monitoring - Official sampling - Objective sampling	single (food/feed)	25	Gram	N_A	Not Available	8	8	Salmonella Enteritidis	8

Table Staphylococcal enterotoxins:STAPHYLOCOCCAL ENTEROTOXINS in food

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Sample weight	Sample weight unit	Sampling Details	Method	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Other processed food products and prepared dishes - Restaurant or Cafe or Pub or Bar or Hotel or Catering service - Not Available - Not Available - Monitoring - Official sampling - Objective sampling	single (food/feed)	25	Gram	N_A	Not Available	66	4	Staphylococcal enterotoxins	4

Table Staphylococcus:STAPHYLOCOCCUS AUREUS METICILLIN RESISTANT (MRSA) in food

Area of Sampling	Matrix - Sampling stage - Sampling origin - Sample type - Sampling context - Sampler - Sampling strategy	Sampling unit	Sample weight	Sample weight unit	Sampling Details	Method	Total units tested	Total units positive	Zoonoses	N of units positive
Not Available	Other processed food products and prepared dishes - Restaurant or Cafe or Pub or Bar or Hotel or Catering service - Not Available - Not Available - Monitoring - Official sampling - Objective sampling	single (food/feed)	25	Gram	N_A	Not Available	138	4	Staphylococcus aureus	4

FOODBORNE OUTBREAKS TABLES

Foodborne Outbreaks: summarized data

		Outbreak strenght	Strong		
Causative agent	Food vehicle	N outbreaks	N human cases	N hospitalized	N deaths
Salmonella	Mixed food	1	39	2	0
Salmonella Enteritidis	Bakery products	1	6	5	0
Salmonella Enteritidis Not typable	Eggs and egg products	1	17	5	0
Salmonella spp., unspecified	Dairy products (other than cheeses)	1	4	4	0
Trichinella spiralis	Pig meat and products thereof	1	9	3	0

Strong Foodborne Outbreaks: detailed data

Causative agent	Other Causative Agent	FBO nat. code	Outbreak type	Food vehicle	More food vehicle info	Nature of evidence	Setting	Place of origin of problem	Origin of food vehicle	Contributory factors	Comment	N outbreaks	N human cases	N hosp.	N deaths
Salmonella	Not Available	N_A	General	Mixed food	N_A	Detection of causative agent in food chain or its environment - Detection of indistinguishable causative agent in humans	Take-away or fast-food outlet	Unknown	Bosnia and Herzegovina	Unknown	N_A	1	39	2	0
Salmonella Enteritidis	Not Available	N_A	Household	Bakery products	N_A	Detection of causative agent in food chain or its environment - Symptoms and onset of illness pathognomonic to causative agent	Household	Household	Bosnia and Herzegovina	Cross-contamination	N_A	1	6	5	0
Salmonella Enteritidis Not typable	Not Available	N_A	Not Available	Eggs and egg products	N_A	Descriptive epidemiological evidence	Not Available	Not Available	Not Available	Not Available	N_A	1	17	5	0
Salmonella spp., unspecified	Not Available	N_A	Not Available	Dairy products (other than cheeses)	N_A	Descriptive epidemiological evidence	Not Available	Not Available	Not Available	Not Available	N_A	1	4	4	0
Trichinella spiralis	Not Available	N_A	Household	Pig meat and products thereof	N_A	Detection of causative agent in food chain or its environment - Symptoms and onset of illness pathognomonic to causative agent	Household	Others	Bosnia and Herzegovina	Other contributory factor	N_A	1	9	3	0

Weak Foodborne Outbreaks: detailed data

No data returned for this view. This might be because the applied filter excludes all data.

ANTIMICROBIAL RESISTANCE TABLES FOR CAMPYLOBACTER

ANTIMICROBIAL RESISTANCE TABLES FOR SALMONELLA

ANTIMICROBIAL RESISTANCE TABLES FOR INDICATOR ESCHERICHIA COLI

OTHER ANTIMICROBIAL RESISTANCE TABLES

Specific monitoring of ESBL-/AmpC-/carbapenemase-producing bacteria and specific monitoring of carbapenemase-producing bacteria, in the absence of isolate detected

No data returned for this view. This might be because the applied filter excludes all data.

Specific monitoring of ESBL-/AmpC-/carbapenemase-producing bacteria and specific monitoring of carbapenemase-producing bacteria, in the absence of isolate detected

Latest Transmission set

Table Name	Last submitted dataset transmission date
Animal Population	26-Jul-2019
Food Borne Outbreaks	26-Jul-2019
Prevalence	26-Jul-2019

Bosnia and Herzegovina, Text Forms 2018

1. Institutions and Laboratories involved in zoonoses monitoring and reporting

The Food Safety Agency of Bosnia and Herzegovina (FSA)[1]
The FSA is an independent administrative organization established by the Decision on the Establishment of the Food Safety Agency of Bosnia and Herzegovina (Official Gazette of BiH, No. 22/05), and on the basis of the Food Law (Official Gazette of BiH, No. 50/04) according Regulation (EC) No 178/2002 of the European Parliament and of the Council of 28 January 2002 laying down the general principles and requirements of food law, establishing the European Food Safety Authority and laying down procedures in matters of food safety The FSA is a competent authority in Bosnia and Herzegovina for food safety. Main mission of the FSA is to:
-provide scientific advice and scientific and technical support for the legislation and policies in Bosnia and Herzegovina in all fields which have a direct or indirect impact on food and feed health correctness. It shall provide independent information on all matters within these fields and communicate on risks,
-contribute to a high level of protection of human life and health, and in this respect take account of animal health and welfare, plant health and the environment on the territory of Bosnia and Herzegovina,
-collect and analyze data to allow the characterization and monitoring of risks which have a direct or indirect impact on food and feed health correctness,
-scientific advice and scientific and technical support on human nutrition in relation to legislation of Bosnia and Herzegovina and assistance concerning communication on nutritional issues within the framework of the health program in Bosnia and Herzegovina,
-scientific opinions on other matters relating to animal health and welfare and plant health,
-scientific opinions on products including food and feed relating to genetically modified organisms,
The FSA shall work in close cooperation with the competent authorities of Bosnia and Herzegovina and entities in Bosnia and Herzegovina, the Federation of Bosnia and Herzegovina, the Republika Srpska and the Brčko District of Bosnia and Herzegovina.
The FSA is a contact point for EFSA, RASFF, INFOSAN, Codex Alimentarius, TAIEX food safety, etc.

Beside the FSA, the main task of data reporting takes the following institutions:

The State Veterinary Office of Bosnia and Herzegovina (SVO)[2]
The SVO is under the administrative jurisdiction of the Ministry of Foreign Trade and Economic Relations BiH. Its work is based on the provisions of the Veterinary Law in Bosnia and Herzegovina from the year 2002 ("Official Gazette BiH", number 34/02).
In accordance with the Constitution of BiH, the veterinary services of the Entities and Brčko District of BiH are responsible for the implementation of monitoring and control of infectious diseases in BiH, including zoonoses, whereas for the human cases, the public health services at competent levels in the country are responsible. Thus, veterinary services of the entities and Brčko District of BiH may issue their own legislation

The Public Health Institute of Republic of Srpska (PHI RS)[3]
The PHI RS is a highly specialized health institution, with scope of activities and operation prescribed by the Law on Health Care and the Law on entire region of the Republic of Srpska and often beyond. The Institute performs its activities through its six units stationed in Banjaluka, Doboj, Trebinje, Istočno Sarajevo, Foča and Zvornik. It performs a range of general operations and activities such as surveillance and analysis of entire health sector of the Republic of Srpska and participates in development of strategies and legal regulations on health care; it also processes clinical and non-clinical specimens and performs microbiological, epidemiological, radiological and physical and chemical testing.

[1] https://fsa.gov.ba/
[2] https://webgate.ec.europa.eu - Twinning Fiche BA 18 IPA AG 02 19.docx; http://www.vet.gov.ba/
[3] https://www.phi.rs.ba/index.php?lang=EN

The Institute for Public Healt of Federation of Bosnia and Herzegovina (IPH FBiH)[4]
The IPH FBiH functions in two organizational units, in Sarajevo and Mostar, which form a single functional unit. The IPH FBiH performs professional tasks within the legally defined activities, through its services / centers, which are structured into departments. Public health work is done through the operation of seven services and two centers.
The IPH FBiH acts as an institution that implements public health functions of interest to the Federation of BiH and actively cooperates with relevant sectors and institutions in the country as well as numerous international organizations.
Through a diverse range of public health functions, the IPH FBiH seeks to fulfill its mission as a professional referral and scientific institution in the field of public health, which through monitoring, scientific research and education, as well as health promotion, actively influences the improvement of the health status of the population in Federation BiH and a vision that emphasizes the role of the IPH FBiH. With its function, the IPH FBiH significantly influences the improvement of the health status of the population and the creation of public policies in cooperation with all public health institutions, other sectors and with the full support of the community.

Sub-Department of Public Health Brčko Distrikt (PH BD BiH)[5]
The PH BD BiH is one of the four organization units of the Department of Health and Other Services of Brčko district BiH.
The main activities are:
-Performs planning, programming and evaluation of the health system through: total registered infectious diseases, leading infectious diseases, lethality from infectious diseases, epidemics of infectious diseases, immunization, total number of non-communicable diseases, leading non-communicable diseases
- Immunization program, early detection and control of infectious diseases (TB, carrier state, HBsAg, etc.)
-water monitoring (bacteriological and chemical - urban, local water supply, wells and private wells,
-health surveillance of foodstuffs, general-purpose items, employees working in the production, distribution of foodstuffs,
-health education of the population,
-continuous improvement of the quality system in accordance with BAS EN ISO / IEC 17025

2. Animal population

1. Sources of information and the date(s) (months, years) the information relates to[(a)]

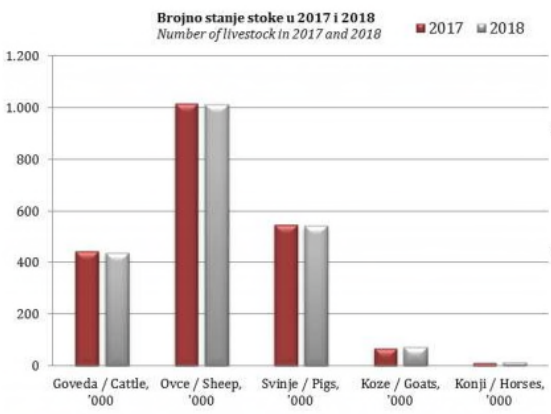
The Agency for Statistics of Bosnia and Herzegovina (SA BiH)[6]
The mission of the SA BiH is to provide reliable, high-quality, understandable, timely and internationally comparable statistical data that meet the needs of decision-makers, researchers and other domestic and foreign users and reflect the state and changes in the economic, demographic and social area, area of the environment and natural resources.
The collection, processing, analysis and dissemination of statistical data is performed on the basis of statistical standards and modern technology, with the protection of statistical confidentiality, optimal use of resources and a reasonable burden on data providers.
The data on livestock number are the result of aggregation of comparable the data from the statistical surveys conducted by the two statistical offices on the Entity level and by the Bureau in Brcko District. Data on legal entities and parts of legal entities are collected through annual reports. The data on the number of livestock and livestock production for private family farms have been estimated on the basis of the estimation of the number of livestock and livestock production made by the estimators in responsible municipality organs
Agriculture, environment and regional statistics - Number of livestock and poultry and livestock production

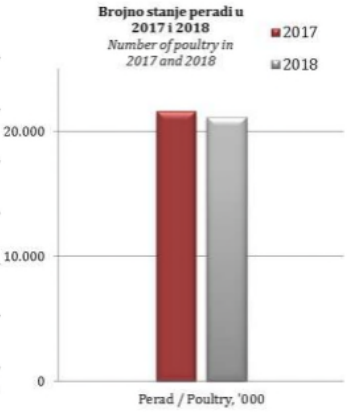
[4] https://www.zzjzfbih.ba
[5] http://zou.bdcentral.net/Content/Read/%20pododjeljenje-%20za%20-javno-%20zdravstvo
[6] http://bhas.gov.ba/data/Publikacije/Saopstenja/2019/AGR_04_2018_Y1_0_BS.pdf

in 2018
In 2018 the total number of cattle decreased by 1,6%, of sheep by 0,4%, of pigs by 1,1%, of horses by 12,5%, of poultry by 2,2% and of beehives by 0,5% in relation with the same period of 2017. In the same period the total number of goats remained on the same level.

Brojno stanje stoke i peradi
Number of livestock and poultry

	UKUPNO *TOTAL*		Indeksi/*Indices* 2018/2017	
	2017	2018		
GOVEDA (hilj. grla)	**445**	**438**	**98,4**	***CATTLE ('000 heads)***
Krave i steone junice (hilj. grla)	272	265	97,4	*Cows and heifers in calf ('000 heads)*
OVCE (hilj. grla)	**1.017**	**1.013**	**99,6**	***SHEEP ('000 heads)***
Ovce za priplod (hilj. grla)	595	576	96,8	*Ewes for breeding ('000 heads)*
SVINJE (hilj. grla)	**548**	**542**	**98,9**	***PIGS ('000 heads)***
Krmače i suprasne nazimice (hilj. grla)	76	73	96,1	*Sows and sows of first farrow ('000 heads)*
KONJI (hilj. grla)	**16**	**14**	**87,5**	***HORSES ('000 heads)***
PERAD (hilj. komada)	**21.583**	**21.114**	**97,8**	***POULTRY ('000 pieces)***
Koke nesilice (hilj. komada)	5.037	4.571	90,7	*Hens ('000 pieces)*
KOZE (hilj. grla)	**73**	**73**	**100,0**	***GOATS ('000 heads)***





2. Definitions used for different types of animals, herds, flocks and holdings as well as the production types covered

Cows are female bovine animals that have already calved.
Heifers in calf are female breeding animals that are going to calve for the first time.
Sows are female breeding animals that are expected to farrow for the first time.
First-farrow sows are sows that are going to farrow for the first time.
Ewes for breeding are females of the ovine species which have already lambed as well as those which would be lambed for the first time.
Poultry includes broilers, hens, turkeys, geese, ducks and other poultry.

3. National changes of the numbers of susceptible population and trends

Write text here please

4. Geographical distribution and size distribution of the herds, flocks and holdings[(b)]

Write text here please
5. Additional information
Write text here please
(a): National identification and registration system(s), source of reported statistics (Eurostat, others) (b): Link to website with density maps if available, tables with number of herds and flocks according to geographical area

3. General evaluation*: *Staphylococcus aureus*

1. History of the disease and/or infection in the country[(a)]

No adequate data currently

2. Evaluation of status, trends and relevance as a source for humans

Not adequate data currently

3. Any recent specific action in the Member State or suggested for the European Union[(b)]

NA

4. Additional information

-

* **For each zoonotic agent**

(a): Epidemiological evaluation (trends and sources) over time until recent/current situation for the different relevant matrixes (food, feed, animal). If relevant: the official "disease status" to be specified for the whole country and/or specific regions within the country

(b): If applicable

4. General evaluation*: *Staphylococcal enterotoxins*

1. History of the disease and/or infection in the country[(a)]

No adequate data currently

2. Evaluation of status, trends and relevance as a source for humans

Not adequate data currently

3. Any recent specific action in the Member State or suggested for the European Union[(b)]

NA

4. Additional information

-

* **For each zoonotic agent**

(a): Epidemiological evaluation (trends and sources) over time until recent/current situation for the different relevant matrixes (food, feed, animal). If relevant: the official "disease status" to be specified for the whole country and/or specific regions within the country

(b): If applicable

5. General evaluation*: *Salmonella Enteritidis*

1. History of the disease and/or infection in the country[(a)]

No adequate data currently

2. Evaluation of status, trends and relevance as a source for humans

Not adequate data currently

3. Any recent specific action in the Member State or suggested for the European Union[(b)]

NA

4. Additional information

-

* **For each zoonotic agent**

(a): Epidemiological evaluation (trends and sources) over time until recent/current situation for the different relevant matrixes (food, feed, animal). If relevant: the official "disease status" to be specified for the whole country and/or specific regions within the country

(b): If applicable

6. General evaluation*: *Listeria monocytogenes*

1. History of the disease and/or infection in the country[(a)]

No adequate data currently

2. Evaluation of status, trends and relevance as a source for humans

Not adequate data currently

3. Any recent specific action in the Member State or suggested for the European Union[(b)]

NA

4. Additional information

-

* **For each zoonotic agent**

(a): Epidemiological evaluation (trends and sources) over time until recent/current situation for the different relevant matrixes (food, feed, animal). If relevant: the official "disease status" to be specified for the whole country and/or specific regions within the country

(b): If applicable

7. Description of Monitoring/Surveillance/Control programmes system*: *Staphylococcus aureus* in other processed food products and prepared dishes

1. Monitoring/Surveillance/Control programmes system[(a)]

Criteria for the presence of Staphylococcus Aureus in food are defined by The Rulebook on microbiological criteria for food (Officila Gazette of the Republic of Srpska 109/12).

2. Measures in place[(b)]

In case of positive result, food inspector should order prescribed measures as follows: prohibition of the placing on the market, and if necessary, ordering the recall, withdrawal and/or destruction of food if food is still at the market and/or distribution, or any other measure. Usually, food is not anymore at market because of short"use by date" and/or samples were taken at catering level.

3. Notification system in place to the national competent authority[(c)]

Yes

4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]

-

5. Additional information

-

* **For all combinations of zoonotic agents and matrix (Food, Feed and Animals) for 'Prevalence' and 'Disease Status': one text form reported per each combination of matrix/zoonoses or zoonotic agent**

(a): Sampling scheme (sampling strategy, frequency of the sampling, type of specimen taken, methods of sampling (description of sampling techniques) + testing scheme (case definition, diagnostic/analytical methods used, diagnostic flow (parallel testing, serial testing) to assign and define cases. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(b): The control program/strategies in place, including vaccination if relevant. If applicable a description of how eradication measures are/were implemented, measures in case of the positive findings or single cases; any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation, if applicable. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(c): Mandatory: Yes/No.

(d): Minimum five years.

(e): Relevance of the findings in animals to findings in foodstuffs and for human cases (as a source of infection).

8. Description of Monitoring/Surveillance/Control programmes system*:

Staphylococcal enterotoxins in other processed food products and prepared dishes
1. Monitoring/Surveillance/Control programmes system[(a)]
Criteria for the presence of *Staphylococcal enterotoxins* in food are defined by The Rulebook on microbiological criteria for food (Officila Gazette of the Republic of Srpska 109/12).
2. Measures in place[(b)]
In case of positive result, food inspector should order prescribed measures as follows: prohibition of the placing on the market, and if necessary, ordering the recall, withdrawal and/or destruction of food if food is still at the market and/or distribution, or any other measure. Usually, food is not anymore at market because of short"use by date" and/or samples were taken at catering level.
3. Notification system in place to the national competent authority[(c)]
Yes
4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]
-
5. Additional information
-

* **For all combinations of zoonotic agents and matrix (Food, Feed and Animals) for 'Prevalence' and 'Disease Status': one text form reported per each combination of matrix/zoonoses or zoonotic agent**

(a): Sampling scheme (sampling strategy, frequency of the sampling, type of specimen taken, methods of sampling (description of sampling techniques) + testing scheme (case definition, diagnostic/analytical methods used, diagnostic flow (parallel testing, serial testing) to assign and define cases. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(b): The control program/strategies in place, including vaccination if relevant. If applicable a description of how eradication measures are/were implemented, measures in case of the positive findings or single cases; any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation, if applicable. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(c): Mandatory: Yes/No.

(d): Minimum five years.

(e): Relevance of the findings in animals to findings in foodstuffs and for human cases (as a source of infection).

9. Description of Monitoring/Surveillance/Control programmes system*: *Salmonella Enteritidis* in meat from other animal species or not specified

1. Monitoring/Surveillance/Control programmes system[(a)]

Criteria for the presence of *Staphylococcal enterotoxins* in food are defined by The Rulebook on microbiological criteria for food (Officila Gazette of the Republic of Srpska 109/12).

2. Measures in place[(b)]

In case of positive result, food inspector should order prescribed measures as follows: prohibition of the placing on the market, and if necessary, ordering the recall, withdrawal and/or destruction of food if food is still at the market and/or distribution, or any other measure. Usually, food is not anymore at market because of short“use by date” and/or samples were taken at catering level.

3. Notification system in place to the national competent authority[(c)]

Yes

4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]

-

5. Additional information

-

* **For all combinations of zoonotic agents and matrix (Food, Feed and Animals) for ‘Prevalence’ and ‘Disease Status’: one text form reported per each combination of matrix/zoonoses or zoonotic agent**

(a): Sampling scheme (sampling strategy, frequency of the sampling, type of specimen taken, methods of sampling (description of sampling techniques) + testing scheme (case definition, diagnostic/analytical methods used, diagnostic flow (parallel testing, serial testing) to assign and define cases. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(b): The control program/strategies in place, including vaccination if relevant. If applicable a description of how eradication measures are/were implemented, measures in case of the positive findings or single cases; any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation, if applicable. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(c): Mandatory: Yes/No.

(d): Minimum five years.

(e): Relevance of the findings in animals to findings in foodstuffs and for human cases (as a source of infection).

10. Description of Monitoring/Surveillance/Control programmes system*: *Listeria monocytogenes* in other processed food products and prepared dishes

1. Monitoring/Surveillance/Control programmes system[(a)]

Criteria for the presence of *Listeria monocytogenes* in food are defined by The Rulebook on microbiological criteria for food (Officila Gazette of the Republic of Srpska 109/12).

2. Measures in place[(b)]

In case of positive result, food inspector should order prescribed measures as follows: prohibition of the placing on the market, and if necessary, ordering the recall, withdrawal and/or destruction of food if food is still at the market and/or distribution, or any other measure. Usually, food is not anymore at market because of short“use by date” and/or samples were taken at catering level.

3. Notification system in place to the national competent authority[(c)]

Yes

4. Results of investigations and national evaluation of the situation, the trends [(d)] and sources of infection[(e)]

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5. Additional information

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* **For all combinations of zoonotic agents and matrix (Food, Feed and Animals) for ‘Prevalence’ and ‘Disease Status’: one text form reported per each combination of matrix/zoonoses or zoonotic agent**

(a): Sampling scheme (sampling strategy, frequency of the sampling, type of specimen taken, methods of sampling (description of sampling techniques) + testing scheme (case definition, diagnostic/analytical methods used, diagnostic flow (parallel testing, serial testing) to assign and define cases. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(b): The control program/strategies in place, including vaccination if relevant. If applicable a description of how eradication measures are/were implemented, measures in case of the positive findings or single cases; any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation, if applicable. If programme approved by the EC, please provide link to the specific programme in the Commission`s website.

(c): Mandatory: Yes/No.

(d): Minimum five years.

(e): Relevance of the findings in animals to findings in foodstuffs and for human cases (as a source of infection).

11. Food-borne Outbreaks

1. System in place for identification, epidemiological investigations and reporting of food-borne outbreaks

Identification, epidemiological investigations and reporting of food-borne outbreaks in the Republic of Srpska is regulated by The Law on protection of population of communicable diseases (Official Gazette of the Republic of Srpska 90/17) and The Rulebook on reporting of communicable diseases (Official Gazette of the Republic of Srpska 103/18).

In accordance with the aforementioned legislation, any food-borne outbreak must be reported to the Epidemiology department of the Public Health Institute of the Republic of Srpska.

2. Description of the types of outbreaks covered by the reporting

Reporting covers outbreaks of all infectious diseases listed in The Law on protection of population of communicable diseases (Official Gazette of the Republic of Srpska 90/17).

3. National evaluation of the reported outbreaks in the country[(a)]

In 2018, three food-borne outbreaks were reported to the Public Health Institute of the Republic of Srpska. In total, 54 patients were reported.
1. Trichinellosis epidemic: A total of 9 adult patients who consumed dried and roasted wild boar meat in one household, were registered. Three patients were hospitalized due to the severity of the disease. The health inspection took a sample of the remaining meat in which the presence of *Trichinella spiralis* was confirmed.
2. Salmonellosis epidemic: Six patients have been reported, 5 of whom have been hospitalized. All patients consumed homemade cake at a birthday party. Causative agent of this epidemic was *Salmonella enteritidis*.
3. Alimentary intoxication epidemic: 39 mostly school-aged patients have been reported. The patients consumed burgers with mayonnaise and Greek salad. Two patients were hospitalized. *Salmonella species* was isolated in the stool specimens of patients, but it was not found in the food samples.

4. Descriptions of single outbreaks of special interest

-

5. Control measures or other actions taken to improve the situation

Education of population on safe food, control of preparation and distribution of food and permanent health surveillance on workers who are engaged in production and distribution of food products.

6. Any specific action decided in the Member State or suggested for the European Union as a whole on the basis of the recent/current situation

NA

7. Additional information

-

(a): Trends in numbers of outbreaks and numbers of human cases involved, relevance of the different causative agents, food categories and the agent/food category combinations, relevance of the different type of places of food production and preparation in outbreaks, evaluation of the severity of the human cases.

12. Institutions and laboratories involved in antimicrobial resistance monitoring and reporting

Write text here please

Short description of the institutions and laboratories involved in data collection and reporting

13. General Antimicrobial Resistance Evaluation

1. Situation and epidemiological evolution (trends and sources) regarding AMR to critically important antimicrobials[(a)] (CIAs) over time until recent situation

Write text here please

2. Public health relevance of the findings on food-borne AMR in animals and foodstuffs

Write text here please

3. Recent actions taken to control AMR in food producing animals and food

Write text here please

4. Any specific action decided in the Member State or suggestions to the European Union for actions to be taken against food-borne AMR threat

Write text here please

5. Additional information

Write text here please

(a): The CIAs depends on the bacterial species considered and the harmonised set of substances tested within the framework of the harmonised monitoring:

- For *Campylobacter* spp., macrolides (erythromycin) and fluoroquinolones (ciprofloxacin);
- For *Salmonella* and *E. coli*, 3rd and 4th generation cephalosporins (cefotaxime) and fluoroquinolones (ciprofloxacin) and colistin (polymyxin);

14. General Description of Antimicrobial Resistance Monitoring*; Please add the matrix and bacterial species

1. General description of sampling design and strategy[(a)]
Write text here please
2. Stratification procedure per animal population and food category
Write text here please
3. Randomisation procedure per animal population and food category
Write text here please
4. Analytical method used for detection and confirmation[(b)]
Write text here please
5. Laboratory methodology used for detection of antimicrobial resistance[(C)]
Write text here please
6. Results of investigation
Write text here please
7. Additional information
Write text here please

*** to be filled in per combination of bacterial species/matrix**

(a): Method of sampling (description of sampling technique: stage of sampling, type of sample, sampler), Frequency of sampling, Procedure of selection of isolates for susceptibility testing, Method used for collecting data.

(b): Analytical method used for detection and confirmation: according to the legislation, the protocols developed by the EURL-AR should be used and reported here. In the case of the voluntary specific monitoring on Carbapenemase-producers, the selective media used (commercial plates, 'in house' media) should be also reported here. In general, any variation with regard to the EURL-AR protocols should be stated here, number of isolates isolated per sample, in particular for *Campylobacter* spp..

(c): Antimicrobials included, Cut-off values