European Food Safety Authority

ZOONOSES MONITORING

SLOVENIA

The Report referred to in Article 9 of Directive 2003/99/EC

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

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

IN 2008

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Slovenia**

Reporting Year:

Laboratory name	Description	Contribution
Health Inspectorate of the Republic of Slovenia HIRS	Competent authority	Monitoring program-preparing Collect data in food Epidemiological investigation
Institute of Public Health of the Republic of Slovenia IPHRS	Researches Laboratory	Monitoring program-preparing Collect data in humans Scientific advice and support Analysis and testing
National Veterinary Institute NVI	Researches Laboratory	Scientific advice and support Analysis and testing
Veterinary Administration of the Republic of Slovenia VARS	Competent authority	Monitoring program-preparing Collect data in animals, food and feed Epidemiological investigation National report-preparing Contact point with EC

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 Slovenia during the year 2008 .

The information covers the occurrence of these diseases and agents in humans, animals, foodstuffs and in some cases also in feedingstuffs. In addition the report includes data on antimicrobial resistance in some zoonotic agents and commensal 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 Community 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 Community 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 Community Summary Report on zoonoses that is published each year by EFSA.

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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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1. ANIMAL POPULATIONS

The relevance of the findings on zoonoses and zoonotic agents has to be related to the size and nature of the animal population in the country.

A. Information on susceptible animal population

Sources of information:

Source:
Livestock numbers and number of holdings: Statistical Office of the Republic of Slovenia
Number of slaughtered animals: Veterinary Administration of the Republic of Slovenia
Number of flocks (Gallus gallus): Veterinary Administration of the Republic of Slovenia
Number of holdings (Turkeys): Veterinary Administration of the Republic of Slovenia

Dates the figures relate to and the content of the figures:

Reference day for year 2008 is 1 December 2008.
Livestock numbers and number of holdings: Reference date is the date the obtained data refer to.
Number of slaughtered animals: The number of slaughtered animals in 2008.

Definitions used for different types of animals, herds, flocks and holdings as well as

Definitions and other explanations
Agricultural holding is a single unit, both organisational and operating, of agricultural area utilised, forests, buildings, equipment and labour force, which has a single management and which is engaged in agricultural production.

Additional information

METHODOLOGICAL EXPLANATIONS
The purpose of the survey
The Farm Structure Survey (FSS) is one of the basic statistical surveys in the field of agriculture. In accordance with EU regulation it is conducted as a census every 10 years. Between censuses it can be conducted as a sample survey.
Observation units
Observation units are agricultural holdings satisfying the criteria of EU comparable threshold and all agricultural enterprises and co-operatives.
Data on agricultural enterprises and co-operatives were collected by questionnaire by post.

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	**Category of animals**		**Year**		**Year**		**Year**		**Year**
Cattle (bovine animals)	**breeding bulls**					1403			
	calves (under 1 year)			25936		145375			
	dairy cows and heifers					180916		19196	2007
	in total			131395		469983		40842	2007
	meat production animals					79727			
	mixed herds					62562			
	unspecified			105459					
Deer	**farmed - in total**			21		4803	2007	263	2007
Ducks	**in total**					11575			
Gallus gallus (fowl)	**broilers**	3036		34086375				3003	2007
	in total	3359		34460985					
	laying hens	172		374610				37978	2007
	parent breeding flocks for egg production line	4							
	parent breeding flocks for meat production line	147							

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	**Category of animals**		**Year**		**Year**		**Year**		**Year**
Geese	**in total**					2856			
Goats	**animals over 1 year**			77					
	animals under 1 year			343					
	animals under 1 year - at farm			2					
	in total			422		24228		4133	2007
Pigs	**at farm**			795					
	breeding animals			1175					
	breeding animals - unspecified - sows and gilts					43124			
	fattening pigs			360728		185879			
	fattening pigs - unspecified - piglets			22497		121686			
	in total			385195		432011		31690	2007
	mixed herds					81322			
Sheep	**animals over 1 year**			628					
	animals under 1 year (lambs)			10065					

Table Susceptible animal populations

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	**Category of animals**		**Year**		**Year**		**Year**		**Year**
Sheep	**animals under 1 year (lambs) - at farm**			185					
	in total			10878		138958		5923	2007
Solipeds, domestic	**horses - in total**			1477		19623	2007	5081	2007
Turkeys	**in total**			494817		144573		48	

Footnote:

Source:
Number of holdings, Livestock numbers: Statistical office of the Republic of Slovenia
Number of slaughtered animals: Veterinary Administration of the Republic of Slovenia
Number of flocks:Veterinary Administration of the Republic of Slovenia:
Gallus gallus:
parent breeding flocks - flocks on holdings with 250 and more animals
laying hens - flocks on holdings with 350 and more animals
Turkeys: number of holdings with fattening turkeys rearing for slaughter in approved slaughterhouses (Source: VARS)

2. INFORMATION ON SPECIFIC ZOONOSES AND ZOONOTIC AGENTS

Zoonoses are diseases or infections, which are naturally transmissible directly or indirectly between animals and humans. Foodstuffs serve often as vehicles of zoonotic infections. Zoonotic agents cover viruses, bacteria, fungi, parasites or other biological entities that are likely to cause zoonoses.

2.1 SALMONELLOSIS

2.1.1 General evaluation of the national situation

A. General evaluation

History of the disease and/or infection in the country

After the second World War only Salmonella Typhi and Paratyphi were notified. In 1950 -s Salmonella Typhi and Paratyphi infections were more and more rare, other Salmonella serotypes were more and more frequent.
From 1946 to 1953 3414 cases of Salmonella Typhi and 3415 cases of Salmonella Paratyphi were notified. Among them 180 patients with Salmonella Typhi and 41 patients with Salmonella Paratyphi died.
After year 1953 epidemiological situation changed. More other Salmonella serotypes (Salmonella Typhimurium, Choleraesuis, Enteritidis etc.) were identified and less Salmonella Typhi and Paratyphi.
From the year 1954 to 2000 188 serotypes of Salmonella were identified and 82742 notifications of Salmonella gastroenteritis in Slovenia.

In last years Salmonella Enteritidis encounters more than 90% of Salmonella isolates in Slovenia.
Salmonella Typhi, S.Paratyphi are notified only as imported infections.

National evaluation of the recent situation, the trends and sources of infection

The number of notified human Salmonella cases declined from 3307 notifications in 2004 to 1519 in 2005 and 2006. In 2007 and 2008 the number of notifications dropped to 1345 and 1090. The incidence of notified Salmonella cases dropped to 54 per 100 000 inhabitants.
(The average number of notified Salmonella cases in last 5 years in Slovenia was 1756 cases, the highest number was in year 2004 - 3307 cases; incidence 165,5/ 100 000 inhabitants).
Most frequent serotypes are: Salmonella Enteritidis (about 90% out of all isolates), Salmonella Typhimurium, Salmonella Coeln, Salmonella Stanleyville, Salmonella Infantis.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

Source of infection are probably still poultry and eggs.

As Salmonella Enteritidis remains most common serotype in humans, but not in animal population, other sources should be investigated as well. Bad hygiene and lack of knowledge of mode of transmission, mainly in smaller restaurants, caterings, family outbreaks is also important for transmission.

Recent actions taken to control the zoonoses

Action plan to improve intersectoral collaboration between human medicine and veterinary medicine. A two years research project for comparison of Salmonella Enteritidis strains of human, food and animal origin started in 2008.

Suggestions to the Community for the actions to be taken

Improvement of the intersectoral collaboration between veterinary and human medicine.

Additional information

According to the results of antimicrobial susceptibility testing the spread of resistant strains in animals and food of animal origin seems to decline in 2008 compared to the results of previous years. Still strains resistant to quinolons were found (in serovars Enteritidis and Infatis) and also multiresistant strains of serovar Typhimurium.

2.1.2 Salmonellosis in humans

A. Salmonellosis in humans

Reporting system in place for the human cases

Human cases are notifiable by national Law on Infectious Diseases (official Gazette number 69/95, revised 33/2006).
Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification in place after the second World War.

Case definition

According to definitions of EC/ECDC.

Diagnostic/analytical methods used

Serologic and biochemical identification: isolation on SS agar and selen medium, serotypisation O and H according to Kauffman White scheme.
Laboratory of Institute of Public Health of Celje developed also PFGE method for Salmonella isolates from whole Slovenia.

Notification system in place

Human cases are notifiable by national Law on infectious diseases. Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification after second World War.

History of the disease and/or infection in the country

After the second World War only Salmonella Typhi and Paratyphi were notified. In 1950 -s Salmonella Typhi and Paratyphi infections were more and more rare, other Salmonella serotypes were more and more frequent.
From 1946 to 1953 3414 cases of Salmonella Typhi and 3415 cases of Salmonella Paratyphi were notified. Among them 180 patients with Salmonella Typhi and 41 patients with Salmonella Paratyphi died.
After year 1953 epidemiological situation changed. More other Salmonella serotypes (Salmonella Typhimurium, Choleraesuis, Enteritidis etc.) were identified and less Salmonella Typhi and Paratyphi.
From the year 1954 to 2000 188 serotypes of Salmonella were identified and 82 742 notifications of Salmonella gastroenteritis in Slovenia.

In last years Salmonella Enteritidis encounters more than 90% of Salmonella isolates in Slovenia.
Salmonella Typhi, S.Paratyphi are notified only as imported infections.

Results of the investigation

The number of notified human Salmonella cases declined from 3307 notifications in 2004 to 1519 in 2005 and 2006. In 2007 and 2008 the number of notifications dropped to 1345 and 1090. The incidence of notified Salmonella cases dropped to 54 per 100 000 inhabitants.

(The average number of notified Salmonella cases in last 5 years in Slovenia was 1756 cases, the highest number was in year 2004 - 3307 cases; incidence 87/ 100 000 inhabitants).

Most frequent serotypes are: Salmonella Enteritidis, Salmonella Typhimurium, Salmonella Coeln, Salmonella Stanleyville, Salmonella Infantis.

National evaluation of the recent situation, the trends and sources of infection

The incidence of human Salmonella infections has recently decreased according to notified number of Salmonella human cases. Source of infection are probably still poultry and eggs, but as Salmonella Enteritidis is far more common in humans than in poultry, other sources should be identified as well.

Relevance as zoonotic disease

Salmonella human infections are important as zoonotic disease. According to notification, Salmonella is still most frequent bacterial enteropathogen, Campylobacter is second most important.

Table Salmonella in humans - Species/serotype distribution

Salmonella	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.	Unknown status
	1090	54.3	0	0	0	0	1090
S. Abony	7	0.4					7
S. Aequatoria	1	0.05					1
S. Agona	1	0.05					1
S. Bareilly	2	0.1					2
S. Bispebjerg	2	0.1					2
S. Blegdam	1	0.05					1
S. Coeln	69	3.4					69
S. Eastbourne	1	0.05					1
S. Enteritidis	853	42.2					853
S. Hadar	1	0.05					1
S. Haifa	1	0.05					1
S. Infantis	12	0.6					12
S. Kallo	1	0.05					1
S. Kentucky	3	0.2					3
S. Kottbus	3	0.2					3
S. Litchfield	1	0.05					1
S. Livingstone	1	0.05					1
S. Muenchen	1	0.05					1
S. Napoli	1	0.05					1
S. Ohio	1	0.05					1

Table Salmonella in humans - Age distribution

Age Distribution	S. Abony			S. Aequatoria			S. Agona			S. Bareilly			S. Bispebjerg		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
<1 year	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
1 to 4 years	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
5 to 14 years	2	1	1	0	0	0	0	0	0	0	0	0	0	0	0
15 to 24 years	0	0	0	1	1	0	0	0	0	0	0	0	0	0	0
25 to 44 years	2	1	1	0	0	0	0	0	0	1	0	1	0	0	0
45 to 64 years	1	1	0	0	0	0	0	0	0	0	0	0	2	1	1
65 years and older	0	0	0	0	0	0	1	1	0	1	0	1	0	0	0
Age unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total:	7	4	3	1	1	0	1	1	0	2	0	2	2	1	1

	S. Blegdam			S. Coeln			S. Eastbourne			S. Enteritidis			S. Hadar		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
<1 year	0	0	0	1	1	0	0	0	0	16	3	13	0	0	0
1 to 4 years	0	0	0	8	3	5	0	0	0	88	50	38	0	0	0
5 to 14 years	0	0	0	23	10	13	0	0	0	167	90	77	0	0	0
15 to 24 years	1	0	1	17	6	11	1	0	1	132	77	55	0	0	0
25 to 44 years	0	0	0	8	2	6	0	0	0	183	103	80	1	1	0
45 to 64 years	0	0	0	10	3	7	0	0	0	160	66	94	0	0	0
65 years and older	0	0	0	2	1	1	0	0	0	107	43	64	0	0	0

Table Salmonella in humans - Seasonal distribution

Month	S. Abony	S. Aequatoria	S. Agona	S. Bareilly	S. Bispebjerg	S. Blegdam	S. Coeln	S. Eastbourne	S. Enteritidis	S. Hadar	S. Haifa	S. Infantis	S. Kallo	S. Kentucky	S. Kottbus
	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases
January	0	0	0	0	0	0	0	0	26	0	0	0	0	0	0
February	0	1	1	0	0	0	0	0	18	0	0	0	0	0	0
March	0	0	0	0	0	0	0	0	32	0	0	0	0	0	0
April	0	0	0	0	0	0	0	0	25	0	0	1	0	0	0
May	0	0	0	0	0	0	0	0	54	1	0	3	0	0	2
June	0	0	0	0	0	0	4	0	107	0	0	2	0	0	0
July	0	0	0	0	0	1	5	0	193	0	0	2	0	0	0
August	0	0	0	1	2	0	8	1	107	0	0	3	1	1	1
September	0	0	0	0	0	0	18	0	166	0	0	0	0	0	0
October	0	0	0	0	0	0	14	0	73	0	1	1	0	1	0
November	2	0	0	0	0	0	17	0	32	0	0	0	0	1	0
December	5	0	0	1	0	0	3	0	20	0	0	0	0	0	0
not known	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total:	7	1	1	2	2	1	69	1	853	1	1	12	1	3	3

	S. Litchfield	S. Livingstone	S. Muenchen	S. Napoli	S. Ohio	S. Pakistan	S. Panama	S. Paratyphi B	S. Saintpaul	S. Sandiego	S. Stanleyville	S. Tennessee	S. Thompson	S. Typhimurium	S. Virchow
	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases	Cases
January	0	0	0	0	0	0	1	0	0	0	1	0	0	6	0
February	0	0	1	0	0	0	0	0	1	0	0	0	0	1	0

2.1.3 Salmonella in foodstuffs

A. Salmonella spp. in broiler meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

At retail

HIRS
Annual monitoring programme was prepared with respect to the results of programme/controls carried out in the previous year and epidemiological situation.
The majority of samples were taken in cities with 10000 inhabitants or more and number of samples taken was proportional to the population in the region. There were taken at the retail level where sampling could give an overview over the situation.
Sampling carried out by health inspectors.

Programme:
- fresh prepacked poultry meat: 384 samples/year, within 315 samples of fresh prepacked broiler meat was taken
- meat preparations intended to be eaten cooked: 325 samples/year, within 50 samples of meat preparations from broiler meat intended to be eaten cooked was taken

Frequency of the sampling

At retail

Sampling distributed evenly throughout the year

Methods of sampling (description of sampling techniques)

At retail

A single sample of meat preparation was composed of five units (n=5) and every unit weighed at least 300 g. Samples of fresh prepacked poultry meat were taken in one unit (n=1).
If a sample was not prepacked, a sample weighing 300-400 g was taken by sterile instrument and stored in a sterile bag or other sterile container. Samples had to be delivered to the laboratory in the shortest time possible. The period of time elapsing from sampling to analysis shall by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

At retail

A sample from which Salmonella has been isolated.

Diagnostic/analytical methods used

At retail

Bacteriological method: ISO 6579:2002

Preventive measures in place

GMP, GHP, HACCP

At the moment food business operators introduce the system of additional labelling of poultry meat which includes special warning to the customers to treat poultry meat at requested temperature before any use.

Measures in case of the positive findings or single cases

HIRS
Monitoring at retail:

Informing the owner of the sample and necessary enforcement action.

Notification system in place

HIRS
Whenever zoonotic agent-Salmonella is detected in samples taken, relevant authorities must be informed.

Results of the investigation

HIRS
Monitoring at retail:

Out of 315 samples of prepacked fresh broiler meat and 50 samples of meat preparations taken in restaurants, at retail and catering Salmonella spp. was detected in 2 samples of prepacked fresh broiler meat (0,6 %).
Salmonella spp. was not found in meat preparations made from broiler meat.
Salmonella Infantis was isolated from 1 sample and from 1 sample Salmonella Saintpaul was isolated.

Relevance of the findings in animals to findings in foodstuffs and to human cases

HIRS
The results of sampling do not respond the reported human cases.

B. Salmonella spp. in turkey meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

VARS
Samples of turkey meat were taken at approved cutting plants operating within two largest slaughterhouses for turkeys (99,9% of total turkey slaughter).
Sampling is carried out by the official veterinarians throughout the year.
A meat sample constitutes an epidemiological unit.

At retail

HIRS
Annual monitoring programme was prepared with respect to the results of programme/controls carried out in the previous year and epidemiological situation and legislative criteria.
The majority of samples were taken in cities with 10.000 inhabitants or more and number of samples taken was proportional to the population in the region. There were taken at the retail level where sampling could give an overview over the situation.
Sampling carried out by health inspectors.

Programme:
- fresh prepacked poultry meat: 384 samples/year, within 69 samples of fresh prepacked turkey meat were taken
- minced meat intended to be eaten cooked: 155 samples/year, within 5 samples of minced meat from turkey meat were taken
- meat preparations intended to be eaten cooked: 325 samples/year, within 20 samples of meat preparations from turkey meat intended to be eaten cooked were taken

Frequency of the sampling

At slaughterhouse and cutting plant

At cutting plants, 1 random sample is taken once a week.

At retail

Sampling distributed evenly throughout the year

Type of specimen taken

At slaughterhouse and cutting plant

Fresh meat

Methods of sampling (description of sampling techniques)

At slaughterhouse and cutting plant

Approximately 300 g of meat is taken with sterile tools and put into a sterile bag. A part of meat with the skin on is taken, if possible.

Samples are delivered to the laboratory as soon as possible, as a rule, immediately after sampling (on the same day) or within 24 hours of the sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the receipt. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place, at the temperature of 4 oC (+/-2 oC).

At retail

A single sample of minced meat and meat preparation was composed of five units (n=5) and every unit weighed at least 300 g. Samples of fresh prepacked poultry meat were taken in one unit (n=1).
If a sample was not prepacked, a sample weighing 300-400 g was taken by sterile instrument and stored in a sterile bag or other sterile container. Samples had to be delivered to the laboratory in the shortest time possible. The period of time elapsing from sampling to analysis shall by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

At slaughterhouse and cutting plant

Meat: sample shall be considered positive where the causative agent has been isolated from the sample.

At retail

A sample in which Salmonella was isolated.

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Bakteriological method: ISO 6579:2002, Serotipization: Kauffman-White scheme

At retail

Bacteriological method: ISO 6579:2002

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

VARS
- Registration or approval of establishments subjected to veterinary control.
- identification of animal products and their tracebillity
- veterinary control in establishments

HIRS
Registration of establishments and official control.

Measures in case of the positive findings or single cases

HIRS
Informing the owner of the sample and necessary enforcement action.

Notification system in place

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.
Business operator must notify VARS of the presence of Salmonellae in the establishment.

HIRS
Whenever zoonotic agent-Salmonella is detected in sample taken, relevant authorities must be informed with the result.

Results of the investigation

VARS
In 2008, 74 turkey meat samples were taken. Salmonella was detected in 3 samples (4,05%).
Salmonella Typhimurium was isolated from 1 sample, from one sample S.Saintpaul was isolated and from one sample S.Stanleyville.

HIRS
In 2008, 69 samples of prepacked fresh turkey meat and 25 samples of products therof (20 samples of meat preparations and 5 samples of minced meat) were taken in restaurants, at retail and catering.
Salmonella was detected in 5 samples (3 samples of prepacked fresh turkey meat (4,3%) and 2 samples of meat preparations made from turkey meat (10 %).
Salmonella spp. was not found in samples of minced meat from turkey.
Salmonella Saintpaul was isolated from 2 samples, Salmonella Coeln was isolated from 2 samples and from 1 sample Salmonella Enteritidis was isolated.

National evaluation of the recent situation, the trends and sources of infection

VARS
In comparasion to the preceding year (production phase), the percentage of positive samples of fresh turkey meat decresed (from 5,1% in 2007 to 4,05% positive samples in 2008)therefore situation regarding turkey meat at production stage is favourable.

HIRS

Considerable increasing of the number of positive samples is consequence of inclusion of new food group (meat preparations) to the monitoring.

Relevance of the findings in animals to findings in foodstuffs and to human cases

HIRS

The results of sampling do not respond the reported human cases.

C. Salmonella spp. in pig meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

VARS
Subjected to sampling shall be the meat of bovine and porcine animals in establishments approved for the cutting of fresh meat and/or production of minced meat and meat preparations.
Sampling is carried out by official veterinarians throughout the year.
One meat sample is an epidemiological unit.

Frequency of the sampling

At slaughterhouse and cutting plant

In the bovine and porcine meat cutting plants, 1 meat sample is taken every 1 or 3 months - depends on capacity of production.

Type of specimen taken

At slaughterhouse and cutting plant

Other: Fresh meat

Methods of sampling (description of sampling techniques)

At slaughterhouse and cutting plant

A meat sample weighing approximately 300g is removed by a sterile instrument and stored in a sterile bag.

rule, immediately after sampling or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the receip. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place at the temperature of 4oC(+/- 2oC) and may not be exposed to light.

Definition of positive finding

At slaughterhouse and cutting plant

Positive sample is a sample, where the zoonotic agent has been isolated from. Isolation of agent in 25g.

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Other: Other: Bakteriological method: ISO 6579:2002, Serotipization: Kauffman-White scheme

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

- Registration and/or approval of establishments subjected to veterinary controls
- Identification of animal products and their traceability
- Veterinary controls in establishments

Measures in case of the positive findings or single cases

/

Notification system in place

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.
Business operator must notify VARS f the presence of Salmonellae in the establishment.

Results of the investigation

Sampling at cutting plants.
In 2008, 281 porcine meat samples were taken. Salmonella was not detected in the meat.

National evaluation of the recent situation, the trends and sources of infection

Situation concerning Salmonella spp. in the fresh porcine meat in production remains favourable also in 2008.
On the basis of results obtained in production, the pig meat does not pose a major threat to public health.

D. Salmonella spp. in bovine meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

VARS
Subjected to sampling shall be the meat of bovine and porcine animals in establishments approved for the cutting of fresh meat and/or production of minced meat and meat preparations.
Sampling is carried out by official veterinarians troughout the year.
One meat sample is an epidemiological unit.

Frequency of the sampling

At slaughterhouse and cutting plant

In the bovine and porcine meat cutting plants, 1 meat sample is taken every 1or 3 months - depends on capacity of production.

Type of specimen taken

At slaughterhouse and cutting plant

Other: Fresh meat,

Methods of sampling (description of sampling techniques)

At slaughterhouse and cutting plant

A meat sample weighing approximately 300g is removed by a sterile instrument and stored in a sterile bag.

Samples shall be delivered to the laboratory as soon as possible, as a rule, immediately after sampling or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the receip. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place at the temperature of 4oC(+/- 2oC) and may not be exposed to light.

Definition of positive finding

At slaughterhouse and cutting plant

Positive sample is a sample, where the zoonotic agent has been isolated from.
Isolation of agent in 25g.

Diagnostic/analytical methods used

At slaughterhouse and cutting plant

Other: Bakteriological method: ISO 6579:2002, Serotipization: Kauffman-White scheme

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

VARS
- Registration or approval of establishments subjected to veterinary control.
- identification of animal products and their tracebillity
- veterinary control in establishments

Notification system in place

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.
Business operator must notify VARS of the presence of Salmonellae in the establishment.

Results of the investigation

Sampling at cutting plants.
In 2008, 266 bovine meat samples were taken. Salmonella was not detected in the meat.

National evaluation of the recent situation, the trends and sources of infection

Situation concerning Salmonella spp. in the fresh bovine meat in production remains favourable also in 2008.
On the basis of results obtained in production, the meat of bovine animals does not pose a major threat to public health.

E. Salmonella spp. in food

Monitoring system

Sampling strategy

VARS
Monitoring at processing
Sampling of dairy products for Salmonella spp. shall be conducted in the establishments, which have been registered and/or approved for the production of milk and dairy products.
In cases where business operators produce dairy products using the different types of milk (raw, thermally treated, pasteurised), the dairy products obtained from the raw milk and thermally treated milk shall have precedence in sampling.

HIRS
Monitoring at retail
Annual monitoring programme was prepared with respect to the results of programme/controls carried out in the previous year, epidemiological situation, legislative criteria.
The majority of samples were taken in cities with 10000 inhabitants or more and number of samples taken was proportional to the population in the region.
Samples were taken at the retail level. Sampling was carried out by the health inspectors.

Programme:
- dried infant formulae: 10 samples/year;
- RTE deli dishes with long shelf life (sausages, liver pates, minced lards, greaves, brawns, different spreads, etc.): 40 samples/year;
- other RTE deli dishes (sandwiches, salads, precut sausages and precut fruits and vegetables, etc.): 600 samples/year;
- confectionary products: 300 samples/year;
- ice cream: 100 samples/year

Frequency of the sampling

VARS
Sampling was distributed evenly throughout the months: April - November.
The numbers of samples of dairy products to be taken at establishments had been defined in advance and for every particular VARS Regional Office separately.

HIRS
Sampling was distributed evenly throughout the months: January - December.

Type of specimen taken

VARS: Dairy products

Methods of sampling (description of sampling techniques)

VARS

A single sample of a dairy product shall be composed of five units (n=5), and every unit shall weigh at least 200 g.

Samples were delivered to the laboratory in the shortest time possible, as a rule, immediately after sampling (in 24 hours after sampling at the latest). In time between sampling and delivery to the laboratory, samples shall be kept in cool place.

HIRS

A single sample of RTE deli dishes with long shelf life were composed of five units (n=5), and every unit weighed at least 300 g. A single sample of dried infant formulae were composed of ten prepacked units (n=10). Samples of others food groups were taken in one unit (n=1).

If a sample was not prepacked, a sample weighing 300-400 g was taken by sterile instrument and stored in a sterile bag or other sterile container. Samples had to be delivered to the laboratory in the shortest time possible. The period of time elapsing from sampling to analysis shall by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

A sample in which Salmonella was isolated.

Diagnostic/analytical methods used

Bacteriological method: EN/ISO 6579:2002

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

VARS

- Registration and/or approval of establishments subjected to veterinary controls
- Identification of animal products and their traceability
- Veterinary controls in establishments

HIRS

Registration of establishments and official control.

Measures in case of the positive findings or single cases

HIRS

Informing the owner of the sample and necessary enforcement action.

Notification system in place

Whenever zoonotic agent-Salmonella is detected in sample taken, relevant authorities must be informed with the result.

Results of the investigation

VARS
Monitoring at the establishments
In 2008, 83 samples of dairy products were taken. Salmonella was not detected.

HIRS
Monitoring at retail
In 2008, 10 samples of dried infant formulae, 40 samples of RTE deli dishes with long shelf life, 600 samples other RTE deli dishes, 300 samples of confectionary products and 100 samples of ice cream were taken.
Salmonella was not detected in any sample.

National evaluation of the recent situation, the trends and sources of infection

Situation concerning Salmonella spp. in concerned food product groups is favourable.

F. Salmonella spp. in food - Meat from bovine animals and pig

Monitoring system

Sampling strategy

HIRS
Monitoring at retail

Annual monitoring programme was prepared with respect to the results of programme/controls carried out in the previous year, epidemiological situation, legislative criteria.
The majority of samples were taken in cities with 10000 inhabitants or more and number of samples taken was proportional with the population in the region.
Samples were taken at the retail level. Sampling was carried out by the health inspectors.

Programme:
- minced meat intended to be eaten cooked: 155 samples/year, within 150 samples of minced meat from bovine animals and pig were taken: 27 samples of minced meat from bovine animals, 2 samples of minced meat from pig and 121 samples of mixed minced meat (from bovine animals and pig)
- meat preparations intended to be eaten cooked: 325 samples/year, within 255 samples of meat preparations from bovine animals and pig: 2 samples of meat preparation from bovine animals, 38 samples of meat preparations from pig and 215 samples of meat preparations of mixed meat (from bovine animals and pig)

Frequency of the sampling

Sampling was distributed evenly throughout the months: January - December.

Methods of sampling (description of sampling techniques)

HIRS
A single sample of minced meat and meat preparation was composed of five units (n=5), and every unit was weighed at least 300 g.
If a sample was not prepacked, a sample weighing 300-400 g was taken by sterile instrument and stored in a sterile bag or other sterile container. Samples had to be delivered to the laboratory in the shortest time possible. The period of time elapsing from sampling to analysis shall by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

A sample in which Salmonella was isolated.

Diagnostic/analytical methods used

Bacteriological method: EN/ISO 6579:2002

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

Registration of establishments and official control.

Measures in case of the positive findings or single cases

Informing the owner of the sample and necessary enforcement action.

Notification system in place

Whenever zoonotic agent-Salmonella is detected in sample taken, relevant authorities must be informed with the result.

Results of the investigation

HIRS

In 2008, 150 samples of minced meat (27 samples from bovine animals, 2 samples from pig, 121 samples of mixed meat from bovine animal and pig) and 255 samples of meat preparations intended to be eaten cooked (2 samples from meat of bovine animals, 38 samples of meat from pig and 215 samples of mixed meat - from bovine animals and pig) were taken.

Salmonela spp. was detected in 8 samples (2 samples of mixed minced meat from bovine animals and pig (1,7 %) and 6 samples of meat preparations made of mixed meat from bovine animals and pig (2,8 %)).

Salmonella Typhimurium was isolated from 5 samples, from 1 sample Salmonella Livingstone was isolated and from 1 sample Salmonella Stoubrdge was isolated. Salmonella spp. isolated from 1 sample was not serotyped.

Relevance of the findings in foodstuffs to human cases (as a source of human

HIRS

The results of sampling do not respond the reported human cases.

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Coeln	S. Enteritidis	S. Infantis	S. Saintpaul	S. Stanleyville	S. Typhimurium
Meat from broilers (Gallus gallus) - fresh - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	315	2	0	0	1	1	0	0
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	50	0	0	0	0	0	0	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling [1)]	HIRS	single	25 g	49	0	0	0	0	0	0	0
Meat from turkey - fresh - at cutting plant - Monitoring - official sampling	VARS	batch	25g	74	3	0	0	0	1	1	1
Meat from turkey - fresh - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	69	3	0	1	0	2	0	0
Meat from turkey - meat preparation - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	20	2	2	0	0	0	0	0
Meat from turkey - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling [2)]	HIRS	single	25 g	8	0	0	0	0	0	0	0
Meat from turkey - minced meat - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	5	0	0	0	0	0	0	0

	Salmonella spp., unspecified
Meat from broilers (Gallus gallus) - fresh - at retail - Monitoring - official sampling (n=1)	0
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	0

Table Salmonella in poultry meat and products thereof

	Salmonella spp., unspecified
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling [1)]	0
Meat from turkey - fresh - at cutting plant - Monitoring - official sampling	0
Meat from turkey - fresh - at retail - Monitoring - official sampling (n=1)	0
Meat from turkey - meat preparation - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	0
Meat from turkey - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling [2)]	0
Meat from turkey - minced meat - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	0

Comments:

[1)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)

[2)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)

Table Salmonella in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Cheeses made from cows' milk - at processing plant - Monitoring - official sampling (n=5)	VARS	single	25g	47	0	0	0	0
Cheeses made from goats' milk - at processing plant - Monitoring - official sampling (n=5)	VARS	single	25g	12	0	0	0	0
Cheeses made from sheep's milk - at processing plant - Monitoring - official sampling (n=5)	VARS	single	25g	14	0	0	0	0
Dairy products (excluding cheeses) - at processing plant - Monitoring - official sampling (n=5)	VARS	single	25g	10	0	0	0	0

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Livingstone	S. Stourbridge	S. Typhimurium	Salmonella spp., unspecified
Meat from bovine animals - fresh - at cutting plant - Monitoring - official sampling	VARS	single	25g	266	0	0	0	0	0	0
Meat from bovine animals - meat preparation - intended to be eaten raw - at retail - Monitoring - official sampling (n=1) [1)]	HIRS	single	25 g	7	0	0	0	0	0	0
Meat from bovine animals - meat preparation - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	2	0	0	0	0	0	0
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling (n=1) [2)]	HIRS	single	25 g	1	0	0	0	0	0	0
Meat from bovine animals - minced meat - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	27	0	0	0	0	0	0
Meat from bovine animals and pig - meat preparation - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	215	6	0	0	1	4	1
Meat from bovine animals and pig - meat products - at retail - Monitoring - official sampling [3)]	HIRS	single	25 g	46	0	0	0	0	0	0
Meat from bovine animals and pig - minced meat - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	121	2	0	1	0	1	0
Meat from pig - fresh - at cutting plant - Monitoring - official sampling	VARS	single	25g	281	0	0	0	0	0	0
Meat from pig - meat preparation - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	38	0	0	0	0	0	0
Meat from pig - meat products - cooked, ready-to -eat - at retail - Monitoring - official sampling [4)]	HIRS	single	25 g	57	0	0	0	0	0	0

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Livingstone	S. Stourbridge	S. Typhimurium	Salmonella spp., unspecified
Meat from pig - minced meat - intended to be eaten cooked - at retail - Monitoring - official sampling (n=5)	HIRS	single	10 g	2	0	0	0	0	0	0

Comments:

[1)] from the sample group other RTE deli dishes
[2)] from the sample group other RTE deli dishes
[3)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)
[4)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)

Table Salmonella in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Confectionery products and pastes - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	300	0	0	0	0
Fruits and vegetables - precut - at retail - Monitoring - official sampling (n=1) [1)]	HIRS	single	25 g	47	0	0	0	0
Infant formula - dried - intended for infants below 6 months - at retail - Monitoring - official sampling (n=10)	HIRS	single	25 g	10	0	0	0	0
Other food of non-animal origin - at retail - Monitoring - official sampling [2)]	HIRS	single	25 g	113	0	0	0	0
Other processed food products and prepared dishes - ices and similar frozen desserts - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	100	0	0	0	0
Other processed food products and prepared dishes - sandwiches - at retail - Monitoring - official sampling (n=1) [3)]	HIRS	single	25 g	129	0	0	0	0
Other processed food products and prepared dishes - unspecified - at retail - Monitoring - official sampling (n=1) [4)]	HIRS	single	25 g	183	0	0	0	0

Comments:

[1)] from the sample goup other RTE deli dishes
[2)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)
[3)] from the sample goup other RTE deli dishes
[4)] from the sample goup other RTE deli dishes

2.1.4 Salmonella in animals

A. Salmonella spp. in turkey - breeding flocks and meat production flocks

Monitoring system

Sampling strategy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

VARS
There is no breeding flocks in the Republic of Slovenia.

Meat production flocks

SAMPLING ON HOLDING
Sampling in turkeys flocks was not mandatory in 2008. Operators rearing the fattening turkeys conduct monitoring on the voluntary basis. Sampling is carried out on the holdings, faeces is taken. Results of the monitoring was reported to VARS from designated laboratories.

SAMPLING AT SLAUGHTERHOUSE
Sampling of carcases (neck skin) was carried out with the aim of establishing the level of contamination of turkey carcases in slaughterhouses with salmonella (and campylobacter).
Sampling was carried out continually throughout the year in two (2) approved slaughterhouses where turkeys are slaughtered. Only turkeys raised in the Republic of Slovenia was sampled.
Slaughter batch of more than 2000 animals constitutes an epidemiological unit,if this is not possible, smaller batches can be sampled. Slaughter batch means animals originating from a single flock delivered to the slaughter establishment in a single means of transport.
Sampling shall be conducted throughout the year, distributed by the slaughterhouse official veterinarians in such a way that turkeys of a particular breeder are subjected to sampling at least twice a year. At second sampling of animals of the same breeder the animals kept in a different accommodation facility shall be subjected to sampling.
More than one slaughter batch may be sampled on the same slaughter day in a particular slaughterhouse if necessary so as to ensure that all or most rearing holdings are included in sampling in a year.

Sampling is carried out by the slaughterhouse official veterinarians.

Frequency of the sampling

Meat production flocks: At slaughter (flock based approach)

Sampling distributed evenly throughout the year

Type of specimen taken

Meat production flocks: At slaughter (flock based approach)

Neck skin

Methods of sampling (description of sampling techniques)

Meat production flocks: At slaughter (flock based approach)

From sampling slaughtering batch, after cooling but before any other handling of carcasses (e.g. cutting, packaging), a skin sample was taken from the neck of one carcass or, if this is not enough, also part of the skin from one side of the carcass. It is recomended that, if possible, the whole carcass is sent to the laboratory because of potential cross-contamination of the carcass during sampling.
A sample is taken with sterile tools (sterile knife, scissors, use of sterile gloves,etc.) and put into a sterile plastic bag. The sample of skin must weigh approximately 50g.

Samples were delivered to the laboratory as soon as possible, as a rule, immediately after sampling or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the receip. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place at the temperature of 4oC(+/- 2oC) and may not be exposed to light.

Case definition

Positive sample was a sample where salmonella has been isolated from.

Monitoring system

Diagnostic/analytical methods used

Meat production flocks: At slaughter (flock based approach)

Bacteriological method: ISO 6579:2002

Other preventive measures than vaccination in place

Meat production flocks

Person, who is carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

Control program/mechanisms

The control program/strategies in place

Meat production flocks

The control mechanisms envisages inter alia as follows:
- Registration or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary control
- Identification of animal products and their traceability
- Movements of animals accompanied by prescribed documents
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation
- Veterinary referral form must accompany flocks infected with salmonella

Notification system in place

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.

Results of the business operator monitoring was reported to VARS from designated laboratories.

Results of the investigation

SAMPLING ON HOLDINGS
In 2008, VARS was notified about sampling of 190 turkey flocks conducted by business operator. Salmonella spp.unspecified was identified in five (5) flocks (2,63%).

SAMPLING AT SLAUGHTERHOUSES
In 2008, neck skin samples were analysed from 88 slaughter batches. Salmonella was detected in 11 samples/slaughter batches (12,5%).
The following serovars were isolated: S.Saintpaul (4), S.Kottbus (1), S.Stanleyville (4) and S.Typhimurium (2).

National evaluation of the recent situation, the trends and sources of infection

As compared to 2007 when salmonella was detected in 2,34% samples of neck skin, the percentage of positive samples in 2008 was higher for more than five times (12,5%). However, there was no S.Enteritidis isolated from samples and S.Typhimurium was isolated from two (2) samples (2,27%).

B. Salmonella spp. in pigs

Monitoring system

Sampling strategy

Breeding herds

VARS
Disease is monitored on the basis of clinical signs and/or detection of salmonellosis in other animals at the same holding in accordance with national legislation on the basis of the Instructions on measures for the detection, prevention and suppression of salmonellosis.

In addition from 1.1.2008 till 31.12.2008 the Survey on the prevalence of Salmonella spp. and Methicillinresistant Staphylococcus aureus in herds of breeding pigs was conducted in accordance with Commission Decision 2008/55/EC of 20.12.2007.
Sample was carried out by official veterinarians.
According to Table 1 of Annex 1 to Commission Decision 2008/55/EC, 28 breeding holdings (26+10%)were planed to be sampled within the survey, and therefore, all the breeding holdings keeping 30 or more breeding pigs were included in the sampling.
According to Table 1 of Annex 1 to Commission Decision 2008/55/EC, 88 production holdings (80+10%) planed to be sampled within the survey, and therefore, all the production holdings keeping 50 or more breeding pigs were included in the sampling (i.e. 48 holdings). The
additional 40 holdings were random selected from among the holdings keeping less than 50 but more than 30 breeding pigs.
The holdings to be sampled were equally distributed over the year by every VARS Regional Office.
Random selection was performed by the specific random selection software.
In Slovenia, the additional sampling for the within-holding Salmonella prevalence study was carried out as well. Holdings to be subjected to additional sampling were selected in advance at VARS Main Office. Five (5) production and five (5) breeding holdings were random selected for sampling from among the breeding and production holdings, and the months of sampling were earmarked in advance.

Multiplying herds

See Breeding herds

Fattening herds

See Breeding herds.

Frequency of the sampling

Breeding herds

Sampling distributed evenly throughout the year

Multiplying herds

Sampling distributed evenly throughout the year

Type of specimen taken

Breeding herds

Faeces

Multiplying herds

Faeces

Methods of sampling (description of sampling techniques)

Breeding herds

Sampling was carried out in accordance with Commission Decision 2008/55/EC.

Multiplying herds

See Breeding herds

Case definition

Breeding herds

Positive sample was a sample, where salmonella has been isolated from.

Multiplying herds

See Breeding herds

Diagnostic/analytical methods used

Breeding herds

In accordance with the technical specifications laid down in Annex 1 to Commission Decision 2008/55/EC (ISO 6579,Kaufmann-White scheme).

Multiplying herds

In accordance with the technical specifications laid down in Annex 1 to Commission Decision 2008/55/EC (ISO 6579,Kaufmann-White scheme).

Other preventive measures than vaccination in place

Breeding herds

Persons, who are carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases. In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

Multiplying herds

See Breeding herds

Fattening herds

See Breeding herds

Control program/mechanisms

The control program/strategies in place

Breeding herds

National control programme is carried out in accordance with the national legislation, on the basis of the Instructions on measures for the detection,prevention and suppression of salmonellosis. The control programme envisages inter alia as follows:
- Immediate confirmation of the disease in case of suspected presence by taking samples for the diagnostic purposes, epizootiological investigation, and instituting appropriate measures immediately upon suspecting the presence of disease at the suspect holding. Measures shall be instituted as long as the suspicion of disease has not officially been ruled out.
- Instituting of supplementary measures in the infected holding.
- Registration of holdings who are subjected to veterinary checks
- Identified and registrated animals
- Regular official veterinary checks on holdings
- Movements of animals accompanied by prescribed documents
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation.

Multiplying herds

See Breeding herds

Fattening herds

See Breeding herds

Measures in case of the positive findings or single cases

On the official confirmation of disease carried out in accordance with the national legislation, on the basis of the Instructions on measures for the detection,prevention and suppression of salmonellosis, the following measures shall be instituted at the holding in addition to those instituted at the suspected presence of disease:
- desinfection of incoming raw materials to constitute animal feed;
- treatment of infected animals with an appropriate antibiotic or chemotherapeutic agent on the basis of antibiogram;
- DDD measures;
- other measures for sanitising the infected holding

Notification system in place

Official notification of monitoring results.
In case of presence of salmonellosis, or signs by which it may be suspected that an animal has become sick with or died of Salmonella infection, the animal keeper shall immediately notify thereof the veterinary organisation, and the latter shall notify thereof the relevant VARS Regional Office, submitting also monthly

reports on the developments concerning the disease.

Results of the investigation

Pasive monitoring
In 2008, SAlmonella was identified in 15 pigs on one holding with fattening pigs.

EU-baseline survey
BREEDING HOLDINGS
At 27 breeding holdings 270 pooled faeces samples were taken and analysed. At five (5) breeding holdings the additional sampling was conducted - 500 additional individual faecal samples.
Salmonella spp. was not detected in any of the breeding holdings sampled.

PRODUCTION HOLDINGS
The sampling was conducted at 87 production holdings where 870 pooled faeces samples were taken and analysed. Additional sampling was conducted at five (5) production holdings - 500 additional individual faecal samples.
The presence of Salmonella spp. was detected at 10 holdings. At 8 holdings Salmonella spp. was detected in pooled faeces only, at one holding Salmonella spp. was detected in pooled faeces and in the individual faeces samples and at the one holding Salmonella spp. was detected in an individual faeces sample, whilst the pooled faeces samples were negative.
In the pooled faeces samples, Salmonella spp. was detected at 9 holdings. The following Salmonella serovars were isolated:
S.Derby, S.Virginia, S. Enterica sub.Enterica (phage type R), S.Enteritidis, S.Infantis, S.Agona, S.Coeln and S.Stanleyville.

Out of five production holdings, where the additional sampling had been conducted, Salmonella spp. was detected in individual samples at one(1) holding where S.Enteritidis and S.Hindmarsh were detected and in artificially pooled samples at two(2) holdings where S.Enteritidis, S.Enterica sub.enterica and S. Ohio were detected.

C. Salmonella spp. in bovine animals

Monitoring system

Sampling strategy

VARS
Pasive monitoring in calves
Disease is monitored on the basis of clinical signs and/or detection of salmonellosis in other animals at the same holding in accordance with national legislation on the basis of the Instructions on measures for the detection, prevention and suppression of salmonellosis.

Active monitoring
Sampling is carried out continually throughout the year at approved bovine slaughter establishments where more than 500 bovine animals per year are slaughtered (92% of yearly slaughtered bovine animals).
Sampled are animals raised in the Republic of Slovenia only.
A slaughter animal constitutes an epidemiological unit.
Sampling is carried out by the slaughterhouse official veterinarians.

Frequency of the sampling

Animals at slaughter (herd based approach)

At slaughter establishments, 1 animal - 1 sample. Samples are taken every 1 or 3 months- depends on capacity of the slaughter

Type of specimen taken

Animals at slaughter (herd based approach)

Faeces

Methods of sampling (description of sampling techniques)

Animals at farm

Immediately upon suspicion of disease on the basis of clinical signs and/or detection of salmonellosis in other animals in the same holding, the authorised veterinary organisation must submit for investigation the dead animal carcasses, rectal swabs of suspect animals, samples of litter and feed.

Animals at slaughter (herd based approach)

A faeces sample is taken prior to slaughter, or a sample of intestinal content is taken after slaughter, upon the evisceration from the intestines, upon the aseptic opening of the intestinal wall, or a tied-up portion of the caecum containing an adequate quantity of faeces is submitted to the laboratory. The sample shall be stored in a sterile bag.

At least 100g of faeces shall be taken.

Samples must be delivered to the laboratory in the shortest possible time, as a rule, immediately after sampling (on the same day)or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after sampling, samples must be tested immediately after the receipt. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place, at the temperature of 4oC(+/-2oC) and may not be exposed to light.

Case definition

Animals at farm

The disease shall be considered officially confirmed on the basis of the clinical signs and/or positive bacteriological test results; in the opposite case it shall be considered that the disease has been ruled out.

Animals at slaughter (herd based approach)

Positive animal means an animal, where a positive sample has been taken from. Positive sample means a sample, where the zoonotic agent has been isolated from.

Diagnostic/analytical methods used

Animals at slaughter (herd based approach)

Other: Bacteriological method: ISO/FDIS 6579, Anex D:2007, Serotipisation: Kauffman -White scheme

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases. In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

Control program/mechanisms

The control program/strategies in place

National control programme is carried out in accordance with the national legislation, on the basis of the Instructions on measures for the detection, prevention and suppression of salmonellosis. The control programme envisages inter alia as follows:
- Immediate confirmation of the disease in case of suspected presence by taking

samples for the diagnostic purposes, epizootiological investigation, and instituting appropriate measures immediately upon suspecting the presence of disease at the suspect holding. Measures shall be instituted as long as the suspicion of disease has not officially been ruled out.
- Instituting of supplementary measures in the infected holding.
- Registration and/or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary checks
- Identified and registrated animals
- Regular official veterinary checks on holdings
- Movements of animals accompanied by prescribed documents
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation.

Measures in case of the positive findings or single cases

Measures in case of the positive findings or single cases:
On the official confirmation of disease, the following measures shall be instituted at the holding in addition to those instituted at the suspected presence of disease:
- disinfection of incoming raw materials to constitute animal feed;
- treatment of infected animals with an appropriate antibiotic or chemotherapeutic agent on the basis of antibiogram;
- DDD measures;
- other measures for sanitising the infected holding

Notification system in place

Official notification of monitoring results.
In case of presence of salmonellosis, or signs by which it may be suspected that an animal has become sick with or died of Salmonella infection, the animal keeper shall immediately notify thereof the veterinary organisation, and the latter shall notify thereof the relevant VARS Regional Office, submitting also monthly reports on the developments concerning the disease.

Results of the investigation

In 2008, 386 faeces samples were taken. Salmonella was detected in one sample (0,26%), where S.Infantis were identified.

National evaluation of the recent situation, the trends and sources of infection

As compared to 2007 (1,005% of positives) the number of positive cases in 2008 decresed by more than three (3) times (0,26 of positives), and thus we find the situation concerning salmonella in bovine animals favourable.

D. Salmonella spp. in Gallus Gallus - breeding flocks

Monitoring system

Sampling strategy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

VARS
Sampling was carried out in all breeding flocks including at least 250 birds.

Sampling shall be conducted on the incentive of the business operator, i.e. in breeding layer parent flocks at the holding, and in adult parent flocks at the hatchery.

Animal owner or holder of activity of the hatchery shall at his own expence take samples for analysis in order to detect the presence of Salmonella.
Sampling was carried out at the iniciative of the operator: at the holding (day old chicks and rearing flocks sampling) and every two weeks at the hatcheries (adult flocks sampling).

Routine official control sampling is carried out at the holdings and at the hatcheries (adult flock sampling). Sampling is carried out in each adult flock every 16 weeks at hatchery and on the holdings at two occasions:
- during the production cycle (within four weeks following moving to laying phase
- at the end of the laying phase, not earlier than 8 weeks before the end of production cycle).

Confirmatory sampling by the official veterinarian is carried out:
- at the holding folowing detection of relevant salmonella at the hatchery
- at the holding following detection of relevant salmonella in the samples taken in rearing flocks by business operator.
The sampling at the holding shall be supplemented by sampling hens in order to establish the presence of antimicrobial substances in animals in cases, where the official veterinarian on having consulted the business operator, checked the records and assessed the situation at the holding finds that necessary. To this end, 5 hens shall be taken at random from every house. The number of hens sampled may be increased.

Frequency of the sampling

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Every flock is sampled

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Other: Every flock is sampled. Firstly at four week of age and secondly two weeks prior to entering the laying phase.

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Every two weeks.

Type of specimen taken

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Other: Internal linings of delivery boxes and dead chicks.

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Faeces

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Other: eggshell

Methods of sampling (description of sampling techniques)

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Sampling of the internal linings of the boxes in which the chicks have been delivered to the holding, and of the carcasses of the chicks found dead on arrival.

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Sampling at the initiative of the operator and confirmatory sampling by official veterinarian is carried out as specified in Annex of Commission Regulation (EC) No.1003/2005, point 2.2.2.1.

Breeding flocks: Production period

Sampling at the initiative of the operator at the hatchery:
- 10g broken eggshells is taken from 25 separate hatcher baskets, chrushed, mixed and a 25g sub sample taken.

Routine official sampling at the holdings and confirmatory sampling is carried out as specified in Annex of Commission Regulation (EC) No.1003/2005, point 2.2.2.1.

Routine official sampling at the hatchery:
- 10g broken eggshells is taken from 25 separate hatcher baskets, chrushed, mixed and a 25g sub sample taken.

Official sampling for examination of the presence of antimicrobials or of bacterial growth inhibitory effect in samples: at least five birds from each house.

Case definition

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Flock shall be considered positive whene presence of relevant salmonella has been identified in the sample taken by the operator.

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Flock shall be considered positive when presence of salmonella (other than vaccine strains) has been identified in one or more samples taken at the holding in the official confirmatory sampling.

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Flock shall be considered positive when presence of relevant salmonella (other than vaccine strains)was detected in one or more faecal samples taken at the holdings at the routine official sampling or at the official confirmatory sampling following detection of relevant salmonella from sampling at hatchery.
In case the presence of relevant salmonella is not detected but antimicrobials or bacterial growth inhibitory effect are and the breeding flock is destroyed before repeated sampling was carried out, such flock is considered as an infected breeding flock.

Diagnostic/analytical methods used

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Day-old chicks

Other: Bacteriological method: Method in accordance with the OIE Manual, 5th ed.,2004; Modified ISO 6579:2002 (Recomendation by the CRL)

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Rearing period

Other: Bacteriological method: Method in accordance with the OIE Manual, 5th ed.,2004; Modified ISO 6579:2002 (Recomendation by the CRL)

Breeding flocks (separate elite, grand parent and parent flocks when necessary): Production period

Other: Bacteriological method: Method in accordance with the OIE Manual, 5th ed.,2004; Modified ISO 6579:2002 (Recomendation by the CRL)

Vaccination policy

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

Vaccination of breeding flocks is voluntary. In the internal Control Programmes, the business operators may include vaccination as an additional measure for increasing the resistance. To this end, a vaccine may be used that has been authorised for marketing in the Republic of Slovenia. Live vaccines may be used if the vaccine manufacturer provides for the appropriate bacteriological methods of differentiation between the Salmonella spp. wild strains and the vaccine strains.
Every internal Control Programme that includes vaccination shall be submitted to VARS for confirmation.

In 2008 vaccination for S.Enteritidis was carried out in all of the breeding flocks.

Other preventive measures than vaccination in place

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention

thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

In slaughterhouses: GMP,GHP,HACCP

Control program/mechanisms

The control program/strategies in place

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

National control programme for breeding flocks is carried out in accordance with the national Rules on monitoring and control of salmonella and relevant Community legislation.
The control mechanisms envisages inter alia as follows:
- Registration or approval of holdings who are subjected to veterinary control
- Regular official veterinary checks on holdings
- Movements of animals accompanied by prescribed documents
- Veterinary referral form to accompany flocks infected with salmonella
- Regular sampling in each breeding flock with more than 250 birds
- Compulsory notification in case salmonella is detected
- Measures in the suspect holdings and in case the flocks is consedered as positive due to detection of S.Enteritidis, S.Typhimurium, S.Hadar, S.Virchow and/or S.Infantis.

Measures in case of the positive findings or single cases

Breeding flocks (separate elite, grand parent and parent flocks when necessary)

On having confirmed the presence of serovars Salmonella Enteritidis and/or Salmonella Typhimurium,the business operator shall, based on the internal monitoring and control plan, provide for the implementation of the following measures:

1.no bird from the flock, in which Salmonella has been detected, shall be moved from the holding, unless for slaughter to the slaughterhouse or for killing and destruction under official veterinary control, where:
-slaughter shall be carried out at the slaughterhouse as the last batch in the slaughtering process of that particular production day, by a method minimising the possibility of spreading Salmonella, and in accordance with the food hygiene law;
-products obtained from such poultry may be placed on the market or put into circulation if they have been subjected to processing guaranteeing the elimination of Salmonella, or they shall be removed and used in accordance with the regulations governing the handling of animal by-products; the entire procedure shall be carried out under the control of official veterinarian;
-killing and destruction shall be carried out in accordance with the regulations

governing the handling of animal by-products;
2.eggs laid by hens from positive flock shall be:
-delivered under official veterinary control to an approved establishment for the processing, where they shall be subjected to processing guaranteeing the elimination of Salmonella. Eggs to be delivered to an establishment for the processing shall be wrapped and packaged prior to shipment in a way preventing the removal of individual eggs from the package. The packages must be clearly marked as follows: PRODUCT OF A SALMONELLA-POSITIVE FLOCK - PRESCRIBED PROCESSING MANDATORY or;
-destroyed at the site or processed in line with the provisions regulating the handling of animal by-products;
3. All eggs from positive flocks which are not put into hatcher boxes in the hatchery are destroyed or processed in accordance with the provisions regulating animal by-products;
4. Killing and destruction of day-old chickens from a positive flock;
5. After removing or dispatching the flock in which salmonellas were identified, the manure and litter are removed in accordance with the provisions regulating animal by-products and thorough cleaning and disinfection will be carried out;
6. Prior to the placement of new animals, the bacteriological control of cleaning efficiency and disinfection must be carried out, the result of which must be negative.

On detection and/or confirmation of presence of the S. hadar, S. virchow or S. infantis serovars in the parent flock, the business operator shall provide for the sanitisation of the flock in case that the measures detailed in the preceding paragraph are not decided on. Business operator shall be responsible for the preparation of sanitisation scheme and for the implementation of all the measures of sanitisation of the flock in question.
On concluding the sanitisation of the flock, the operator shall sample the flock and in case that the presence of Salmonella spp. is not identified ,the official veterinarian shall,carry out the official confirmatory sampling of faeces, and in addition for the detection of bacterial growth inhibitory effect and/or antimicrobials. The flock shall be deemed sanitised after Salmonella spp. has not been isolated from the faeces samples taken within the confirmatory official sampling, and where the bacterial growth inhibitory effect and/or antimicrobials have not been detected.

Notification system in place

Notification and reporting must be carried out in accordance with the provisions of the Rules on monitoirng and control of salmonella.

Notification:

In the case of a positive result of a sampling in the scope of monitoring carried out by operator, the operator must immediately inform the VARS regional office thereof.

Reporting:
Upon the receipt of the sample, the laboratory issues a confirmation of the receipt of the sample and keeps the original form - sampling minutes. The laboratory sends a copy of the form, together with the copy of the investigation report, to the main office of the VARS and the original to the business operator and, in the event of official sampling, also to the official veterinarian.

Results of the investigation

In 2008, 151 adult breeding flocks and 91 flocks during the rearing period were tested. Salmonella was detected in one adult flock (meat production) where S.Typhimurium was confirmed.

National evaluation of the recent situation, the trends and sources of infection

In 2006 and 2007, Salmonella was not detected in any flock, while in 2008 one adult breeding flock (meat production) was positive (0,66%). Although, the percentage of positive flocks is still relative low.

Additional information

The following measures shall be instituted in the suspect holding immediately after the business operator has reported the presence of Salmonella:
(1) Official veterinarian shall take faeces samples for the confirmatory official sampling of the parent flock in accordance with point 2.2.2.2.(b) of Annex to the Regulation (EC) No 1003/2005, on having received a notification as referred to in Article 4(1), or a report as referred to in Article 6(3) of these Rules.
(2) In addition to taking official samples as referred to in the preceding paragraph, the official veterinarian shall require the following measures to be instituted at the suspect holding:
- banning the movements and alienation of birds from the suspect flock;
- banning the issuing of health certificates for birds from the suspect flock;
- banning the trade in and circulation of eggs from the suspect flock, unless the eggs are handled as laid down in Article 9(1)(2.) of these Rules;
- where eggs from the suspect flock are hatched, the business operator shall provide for the hatching in separate hatchers and for the traceability of hatching eggs;
- in case of several flocks, the restriction of movements of persons coming into contact with the birds from the suspect flock;
- feed testing at the holding for the presence of Salmonella spp.;
- epizootiological investigation.
(3) Notwithstanding the provision in the first indent of the preceding paragraph, the suspect flock may, after the official confirmatory sampling has been

concluded, be moved to a slaughterhouse for slaughter, or killed and destroyed under the veterinary surveillance.
(4) Measures detailed in paragraph 2 of this Article shall remain in force pending the results of confirmatory official sampling.

USE OF ANTIMICROBIALS:
The use of antimicrobials for control of salmonella in breeding flocks is not allowed. Antimicrobials may be used only in exceptional circumstances defined in Article 2 of Commission Regulation No. 1177/2006. The use shall be based wherever possible on the results of bacteriological sampling and of susceptibility testing.

E. Salmonella spp. in Gallus Gallus - flocks of laying hens

Monitoring system

Sampling strategy

Laying hens flocks

VARS
Sampling shall be conducted in all laying hen flocks at all the holdings with registered houses for rearing laying hens.
Animal owner or holder of activity of the holding keeping laying hens, shall at his own expence take samples for analysis in order to detect the presence of salmonella.

Sampling at the initiative of operators is carried out at day old chicks, at rearing flocks and at adult laying hens flocks.

Official sampling shall be conducted in accordance with point 2.1. of Annex to the Regulation(EC)No.1168/2006.
Official sampling may replace one sampling at the initiative of the operator.
Confirmatory sampling by official veterinarian is carried out at the holding following detection of relevant salmonella in one or more faeces samples taken in flock of laying hens by business operator.

At least once a year, physical checks of the flocks and accommodation conditions, examination of the monitoring and control plan and checks of records shall be conducted at every holding with the registered laying hen houses.

Frequency of the sampling

Laying hens: Day-old chicks

Every flock is sampled

Laying hens: Rearing period

Other: Two weeks prior to entering the laying phase.

Laying hens: Production period

Every 15 weeks.

Type of specimen taken

Laying hens: Day-old chicks

Other: Internal linings of delivery boxes and dead chicks.

Laying hens: Rearing period

Faeces

Laying hens: Production period

Faeces

Methods of sampling (description of sampling techniques)

Laying hens: Day-old chicks

Sampling of the internal linings of the boxes in which the chicks have been delivered to the holding, and of the carcasses of the chicks found dead on arrival.

Laying hens: Rearing period

At faeces sampling in laying hen rearing facilities, two pooled samples of fresh faeces shall be taken in the cages. Every pooled faeces sample shall weigh at least 150 g.
At faeces sampling in laying hen barn rearing facilities, single faeces samples shall be taken with the absorbent footwear covers or socks (referred to hereinafter as boot swabs). In every laying hen flock at the holding, 2 pooled samples shall be taken (two pairs of boot swabs).

At official sampling, the official veterinarian shall take also a dust sample, or in case of scarceness of dust, 1 additional faeces sample (150g or one pair of boot swabs).
Dust sample shall be taken in the different spots within the facility that are abundantly covered in dust. Dust shall be collected in a 250ml bag or container, which shall be filled to the top and contain at least 100 g of dust.

Laying hens: Production period

At faeces sampling in laying hen rearing facilities, two pooled samples of fresh faeces shall be taken in the cages. Every pooled faeces sample shall weigh at least 150 g.
At faeces sampling in laying hen barn rearing facilities, single faeces samples shall be taken with the absorbent footwear covers or socks (referred to hereinafter as boot swabs). In every laying hen flock at the holding, 2 pooled samples shall be taken (two pairs of boot swabs).

At official sampling, the official veterinarian shall take also a dust sample, or in case of scarceness of dust, 1 additional faeces sample (150g or one pair of boot swabs).
Dust sample shall be taken in the different spots within the facility that are abundantly covered in dust. Dust shall be collected in a 250ml bag or container, which shall be filled to the top and contain at least 100 g of dust.

Case definition

Laying hens: Day-old chicks

Flock was considered positive where the causative agent has been identified in the sample of internal linings of delivery boxes and dead chicks.

Laying hens: Rearing period

Flock was considered positive where the causative agent (other than vaccine strains) has been identified in the confirmatory sample of the official sampling.

Laying hens: Production period

Flock was considered positive where the causative agent (other than vaccine strains) has been identified in the confirmatory sample of the official sampling.

Diagnostic/analytical methods used

Laying hens: Day-old chicks

Other: Bacteriological method: Method in accordance with the OIE Manual, 5th ed., 2004; Modified ISO 6579: 2002 (Recommendation by the CRL)

Laying hens: Rearing period

Other: Bacteriological method: Method in accordance with the OIE Manual, 5th ed., 2004; Modified ISO 6579: 2002 (Recommendation by the CRL)

Laying hens: Production period

Other: Bacteriological method: Method in accordance with the OIE Manual, 5th ed., 2004; Modified ISO 6579: 2002 (Recommendation by the CRL)

Other preventive measures than vaccination in place

Laying hens flocks

Person, who is carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

Control program/mechanisms

The control program/strategies in place

Laying hens flocks

National control programme for laying hens is carried out in accordance with the national legislation, on the basis of the Rules for monitoring and control of salmonella.
The control mechanisms envisages inter alia as follows:

- Registration or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary control
- Regular official veterinary checks on holdings
- Movements of animals accompanied by prescribed documents
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation
- Veterinary referral form must accompany flocks infected with salmonella
- Regular sampling of flocks
- Compulsory notification in case salmonella is detected

- Measures in the suspect holdings and in case the flocks is considered as positive due to detection of S.Enteritidis and/or S.Typhimurium

Measures in case of the positive findings or single cases

Laying hens flocks

On having confirmed the presence of serovars Salmonella Enteritidis or/and Salmonella Typhimurium, the business operator shall, based on the internal monitoring and control plan, provide for the implementation of the following measures:
1.no bird from the flock, in which Salmonella has been detected, shall be moved from the holding, unless for slaughter to the slaughterhouse or for killing and destruction under official veterinary control, where:
- slaughter shall be carried out at the slaughterhouse as the last batch in the slaughtering process of that particular production day, by a method minimising the possibility of spreading Salmonella, and in accordance with the food hygiene law;
- products obtained from such poultry may be placed on the market or put into circulation if they have been subjected to processing guaranteeing the elimination of Salmonella, or they shall be removed and used in accordance with the regulations governing the handling of animal by-products; the entire procedure shall be carried out under the control of official veterinarian;
- killing and destruction shall be carried out in accordance with the regulations governing the handling of animal by-products;
2.eggs laid by hens from positive flock shall be:
- delivered under official veterinary control to an approved establishment for the production and/or processing of egg products, where they shall be subjected to processing guaranteeing the elimination of Salmonella. Eggs to be delivered to an establishment for the production and/or processing of egg products shall be wrapped and packaged prior to shipment in a way preventing the removal of individual eggs from the package. Packages must be identified by a note: PRODUCT FROM A POSITIVE FLOCK â€“ COMPULSORY PRESCRIBED PROCESSING; or
- destroyed on the spot, or processed in accordance with the regulations governing the handling of animal by-products;
5.on removal and/or dispatch of the flock, in which Salmonella has been detected, the manure and bedding shall be removed in accordance with the regulations governing the handling of animal by-products, followed by thorough cleaning and disinfection;
6.prior to repopulation, bacteriological control of the efficiency of cleaning and disinfection shall be carried out, with negative results.

In case of confirmed presence of other Salmonella serovars, the business operator shall conduct measures laid down in the internal monitoring and control

plan.

Notification system in place

Notification and reporting must be carried out in accordance with the provisions of the Rules on monitoirng and control of salmonella.

Notification:
In the case of a positive result of a sampling in the scope of monitoring carried out by operator, the operator must immediately inform the VARS regional office thereof.

Reporting:
Upon the receipt of the sample, the laboratory issues a confirmation of the receipt of the sample and keeps the original form - sampling minutes. The laboratory sends a copy of the form, together with the copy of the investigation report, to the main office of the VARS and the original to the business operator and, in the event of official sampling, also to the official veterinarian.

At an onset of salmonellosis or in case of signs by which it may be suspected that an animal has fallen ill or died of Salmonella spp. infection, the animal keeper shall immediately notify thereof the veterinary organisation, which in turn shall notify the relevant VARS Regional Office.

Results of the investigation

In 2008, 99 flocks during rearing period and 172 flocks during production period were sampled. In flocks during rearing period Salmonella was not confirmed.

Salmonella was confirmed in 18 adult flocks during production period. Following serovars were isolated: S.Enteritidis in 15 flocks, S.Ohio in 1 flock, S.Infantis in 1 flock and S.Montevideo in 1 flock.

TYPE OF SAMPLING IN ADULT FLOCKS
Industry and official sampling:
172 adult flock tested and 18 positive adult flocks
- ten flocks positive for S.Enteritidis - positive faeces samples
- five flocks positive for S.Enteritidis - positive dust samples
- one flock positive for S.Montevideo - positive dust sample
- one flock positive for S.Ohio - positive faeces sample
- one flock positive for S.Infantis - positive faeces sample

Industry sampling:census sampling:
172 adult flocks tested and 10 positive adult flocks
- ten flocks positive for S.Enteritidis - positive faeces samples

Official sampling:objective sampling:

74 adult flocks tested and 11 positive adult flocks.
- four flocks positive for S.Enteritidis - positive faeces samples
- four flocks positive for S.Enteritidis - positive dust samples
- one flock positive for S.Montevideo - positive dust sample
- one flock positive for S.Ohio - positive faeces sample
- one flock positive for S.Infantis - positive faeces sample
Official sampling:suspect sampling
10 adult flocks tested and 7 positive adult flocks.
- six flocks positive for S.Enteritidis - positive faeces samples
- one flock positive for S.Enteritidis - positive dust sample

National evaluation of the recent situation, the trends and sources of infection

In 2007, 4 flocks of laying hens in rearing period were found positive (5,97%) while there was no positive flock of laying hens during rearing period in 2008. Therefore the situation regarding laying hens in rearing period is considered as favourable.
In 2007, 11 flocks during production period, out of 179 adult flocks tested, were found positive (6,14) while 11 flocks during production period, out of 172 adult flocks tested, were found positive (6,39) in 2008.
Therefore the situation regarding adult flocks is slightly worse.

Relevance of the findings in animals to findings in foodstuffs and to human cases

Eggs are still probably one of the main source of infections for humans.

Additional information

The following measures shall be instituted in the suspect holding immediately after the business operator has reported the presence of Salmonella:
(1) Official confirmatory sampling
(2) In addition to taking official samples as referred to in the preceding paragraph, the official veterinarian shall require the following measures to be instituted at the suspect holding:
- Banning the movements and alienation of animals from the suspect flock;
- Banning the issuing of health certificates for animals from the suspect flock;
- banning the trade in and circulation of eggs from the suspect flock, unless the eggs are handled as laid down in Article 9(1)(2.) of these Rules;
- In case of larger flocks, restricting the movements of persons coming into contact with animals from the suspect flock;
- Testing of animal feed kept at the holding for the presence of Salmonellae;
- Epizootiological investigation.
(3) Notwithstanding the provision in the first indent of the preceding paragraph, the suspect flock may, after the official confirmatory sampling has been concluded, be moved to a slaughterhouse for slaughter, or killed and destroyed under the veterinary surveillance.
(4) Measures detailed in paragraph 2 of this Article shall remain in force pending

the results of confirmatory official sampling.
USE OF ANTIMICROBIALS:
The use of antimicrobials for the control of S.Enteritidis and S.Typhimurium in laying hens flocks is not allowed. Antimicrobials may be used only in exceptional circumstances defined in Article 2 of Commission Regulation No. 1177/2006. The use shall be based wherever possible on the results of bacteriological sampling and of susceptibility testing.

F. Salmonella spp. in Gallus Gallus - broiler flocks

Monitoring system

Sampling strategy

Broiler flocks

VARS
A)Sampling of broilers at the holding:
Sampling was carried out at the holdings one to three weeks before broilers are leaving for slaughter in approved slaughterhouses. The results of the analysis of the samples must be known before animals leave for slaughterhouse.
Animal owner or holder of activity of the holding keeping broilers shall at his own expence take samples for analysis in order to detect the presence of Salmonella.
B)Sampling of broilers in the slaughterhouses:
In addition to sampling at holdings, broiler carcasses (skin) shall be sampled at slaughterhouses in the period 1.1. 2008 - 31.12.2008 in order to identify the level of contamination of broiler carcasses at slaughterhouses. Sampling shall be conducted uniformly throughout the year in accordance with Commission Decision 2007/516/EC of 19 July 2007 concerning a financial contribution from the Community towards a survey on the prevalence and antimicrobial resistance of Campylobacter spp. in broiler flocks and on the prevalence of Campylobacter spp. and Salmonella spp. in broiler carcasses to be carried out in the Member States.
Sampling was carried out continually throughout the year in three (3) approved slaughterhouses where there were 32 563 606 broilers slaughtered in 2007, representing 99.94 % of all broilers slaughtered.

Sampled were broilers raised in the Republic of Slovenia only.

A total number of samples to be taken in a particular slaughterhouse was determined in proportion with the broiler slaughter percentage. Samples were distributed evenly per months throughout the sampling year.
Slaughter batch of more than 2000 animals constitutes an epidemiological unit,if this is not possible, smaller batches can be sampled. Slaughter batch means animals originating from a single flock delivered to the slaughter establishment in a single means of transport.
Sampling is carried out by the slaughterhouse official veterinarians.

Frequency of the sampling

Broiler flocks: Before slaughter at farm

Every flock is sampled

Broiler flocks: At slaughter (flock based approach)

In three (3) slaughterhouses where more than 2,000,000 broilers are slaughtered per year, the samples were taken each month. The number of samples was equally distributed on the basis of the annual quantity of

slaughtered animals.

Type of specimen taken

Broiler flocks: Before slaughter at farm

Faeces

Broiler flocks: At slaughter (flock based approach)

Surface of carcasses

Methods of sampling (description of sampling techniques)

Broiler flocks: Before slaughter at farm

Pooled faeces samples made up of separate samples of fresh faeces each weighing not less than 1g taken at random from a number of sites (depending on number of birds in the building) in the building in which the birds are kept, or, where the birds have free access to more than one building on a particular holding, from each group of buildings on the holding in which the birds are kept.
Samples were delivered to the laboratory as soon as possible, as a rule, immediately after sampling (on the same day) or within 24 hours of the sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the receipt. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place, at the temperature of 4 oC (+/-2 oC) and may not be exposed to light.
In the laboratory, the caecum shall be opened aseptically and the content pooled in 1 pool sample.

Broiler flocks: At slaughter (flock based approach)

Slaughter batches, which were sampled, were random selected on the day selected for sampling, by random selecting from among as many numbers as there were slaughter batches envisaged for that particular day.

In each slaughtering batch after cooling but before any other handling of carcasses (e.g. cutting, packaging), a whole carcass was taken using a sterile gloves and put into a sterile plastic bag.

Samples were delivered to the laboratory as soon as possible, as a rule, immediately after sampling (on the same day) or within 24 hours of the sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the receipt. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place, at the

temperature of 4 oC (+/-2 oC) and may not be exposed to light.
In the laboratory, the caecum shall be opened aseptically and the content pooled in 1 pool sample.

Case definition

Broiler flocks: Before slaughter at farm

Flock shall be considered positive where the salmonella has been identified in the sample.

Broiler flocks: At slaughter (flock based approach)

A positive carcass sample is a sample from which salmonella was isolated.

Diagnostic/analytical methods used

Broiler flocks: Before slaughter at farm

Other: Bacteriological method: Method in accordance with the OIE Manual, 5th ed., 2004; Modified ISO 6579: 2002 (Recommendation by the CRL)

Broiler flocks: At slaughter (flock based approach)

Bacteriological method: ISO 6579:2002

Other preventive measures than vaccination in place

Broiler flocks

Person, who is carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

Control program/mechanisms

The control program/strategies in place

Broiler flocks

National control programme for broilers is carried out in accordance with the national Rules on monitoring and control of salmonella.
The control mechanisms envisages inter alia as follows:
- Registration of holdings, who are subjected to veterinary checks
- Regular official veterinary checks on holdings
- Movements of animals accompanied by prescribed documents
- Veterinary referral form must accompany flocks infected with salmonella
- Sampling of every flocks before leave for slaughter
- Compulsory notification in case salmonella is detected
- Measures if S.Enteritidis and/or S.Typhimurium was detected

Measures in case of the positive findings or single cases

Broiler flocks: Before slaughter at farm

On having identified the presence of serovars Salmonella Enteritidis and/or Salmonella Typhimurium, the business operator shall, based on the internal monitoring and control plan, provide for the implementation of the following measures:
1. no bird from the flock, in which Salmonella has been detected, shall be moved from the holding, unless for slaughter to the slaughterhouse or for killing and destruction under official veterinary control, where:
- slaughter shall be carried out at the slaughterhouse as the last batch in the slaughtering process of that particular production day, by a method minimising the possibility of spreading Salmonella, and in accordance with the food hygiene law;
- products obtained from such poultry may be placed on the market or put into circulation if they have been subjected to processing guaranteeing the elimination of Salmonella, or they shall be removed and used in accordance with the regulations governing the handling of animal by-products; the entire procedure shall be carried out under the control of official veterinarian;
2. on removal and/or dispatch of the flock, in which Salmonella has been detected, the manure and bedding shall be removed in accordance with the regulations governing the handling of animal by-products, followed by thorough cleaning and disinfection;
3. prior to repopulation, bacteriological control of the efficiency of cleaning and disinfection shall be carried out, with negative results.

In case of confirmed presence of other Salmonella serovars, the business operator shall conduct measures laid down in the internal monitoring and control plan.

Notification system in place

Notification and reporting must be carried out in accordance with the provisions of the Rules on monitoirng and control of salmonella.
Notification:
In the case of a positive result of a sampling in the scope of monitoring carried out by operator, the operator must immediately inform the VARS regional office thereof.
Reporting:
Upon the receipt of the sample, the laboratory issues a confirmation of the receipt of the sample and keeps the original form - sampling minutes. The laboratory sends a copy of the form, together with the copy of the investigation report, to the main office of the VARS and the original to the business operator and, in the event of official sampling, also to the official veterinarian.

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.

Results of the investigation

SAMPLING AT HOLDING

In 2008, 3.036 flocks were sampled. Salmonella was confirmed in 10 flocks (0,33%). Following serovars were identified: S.Chartres in 1 flock, S.Sainpaul in 5 flocks, S.Infantis in 2 flocks, S.Albany in 1 flock and S.Sainpaul and S.Mbandaka both in 1 flock.

SAMPLING AT HOLDINGS

In 2008, 420 carcass samples from 420 slaughter batches were analysed. Salmonella was detected in 7 samples/slaughter batches (1,66%).
S.Enteritidis was isolated from 2 samples, S.Infantis was isolated from 4 samples and S.Saintpaul was isolated from 1 sample.

Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	Salmonella spp., unspecified
Gallus gallus (fowl) - parent breeding flocks for egg production line - day-old chicks - - organ/tissue - Control and eradication programmes - industry sampling - census sampling [1)]	2	VARS	flock	0	0	0	0	0	0	0	0
Gallus gallus (fowl) - parent breeding flocks for egg production line - during production period - - faeces - Control and eradication programmes - official sampling - objective sampling	4	VARS	flock	4	0	0	0	0	0	0	0
Gallus gallus (fowl) - parent breeding flocks for egg production line - during production period - at hatchery - Control and eradication programmes - industry sampling - census sampling	4	VARS	flock	4	0	0	0	0	0	0	0
Gallus gallus (fowl) - parent breeding flocks for egg production line - during production period - at hatchery - Control and eradication programmes - official sampling - objective sampling	4	VARS	flock	4	0	0	0	0	0	0	0
Gallus gallus (fowl) - parent breeding flocks for egg production line - during rearing period - - faeces - Control and eradication programmes - industry sampling - census sampling	2	VARS	flock	2	0	0	0	0	0	0	0
Gallus gallus (fowl) - parent breeding flocks for meat production line - day-old chicks - - organ/tissue - Control and eradication programmes - industry sampling - census sampling [2)]	89	VARS	flock	89	0	0	0	0	0	0	0
Gallus gallus (fowl) - parent breeding flocks for meat production line - during production period - - faeces - Control and eradication programmes - official sampling - objective sampling	147	VARS	flock	147	1	0	0	0	1	0	0

Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	Salmonella spp., unspecified
Gallus gallus (fowl) - parent breeding flocks for meat production line - during production period - at hatchery - Control and eradication programmes - industry sampling - census sampling	147	VARS	flock	147	0	0	0	0	0	0	0
Gallus gallus (fowl) - parent breeding flocks for meat production line - during production period - at hatchery - Control and eradication programmes - official sampling - objective sampling	147	VARS	flock	67	0	0	0	0	0	0	0
Gallus gallus (fowl) - parent breeding flocks for meat production line - during rearing period - - faeces - Control and eradication programmes - industry sampling - census sampling	89	VARS	flock	89	0	0	0	0	0	0	0

Comments:

[1)] Sample: Internal linnings of delivery boxes and dead chicks

[2)] Sample: Internal linnings of delivery boxes and dead chicks

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Albany	S. Enteritidis	S. Infantis	S. Mbandaka	S. Montevideo	S. Ohio
Gallus gallus (fowl) - broilers - - neck skin - Survey - EU baseline survey	3036	VARS	batch	420	7	0	2	4	0	0	0
Gallus gallus (fowl) - broilers - during rearing period - - faeces - Control and eradication programmes - industry sampling - census sampling [1)]	3036	VARS	flock	3036	10	1	0	2	1	0	0
Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	172	VARS	flock	172	7	0	7	0	0	0	0
Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official and industry sampling	172	VARS	flock	172	18	0	15	1	0	1	1
Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - objective sampling	172	VARS	flock	74	11	0	8	1	0	1	1
Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - suspect sampling	172	VARS	flock	10	7	0	7	0	0	0	0
Gallus gallus (fowl) - laying hens - during rearing period - - faeces - Control and eradication programmes - industry sampling	99	VARS	flock	99	0	0	0	0	0	0	0
Turkeys - meat production flocks - - faeces - Monitoring - industry sampling		VARS	flock	190	5	0	0	0	0	0	0

Table Salmonella in other poultry

	S. Saintpaul	S. Typhimurium	Salmonella spp., unspecified	S. Chartres
Gallus gallus (fowl) - broilers - - neck skin - Survey - EU baseline survey	1	0	0	0
Gallus gallus (fowl) - broilers - during rearing period - - faeces - Control and eradication programmes - industry sampling - census sampling [1)]	6	0	0	1
Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	0	0	0	0
Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official and industry sampling	0	0	0	0
Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - objective sampling	0	0	0	0
Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - suspect sampling	0	0	0	0
Gallus gallus (fowl) - laying hens - during rearing period - - faeces - Control and eradication programmes - industry sampling	0	0	0	0
Turkeys - meat production flocks - - faeces - Monitoring - industry sampling	0	0	5	0

Comments:

[1)] In one flock there were two serovars identified (S.Saintpaul and S.Mbandaka)

The following amendments were made:

Date of Modification	Species	Column	Old Value	New Value
2009-12-21	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	S. Enteritidis	10	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	S. Enteritidis	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	S. Enteritidis	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	S. Enteritidis	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	S. Enteritidis	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	S. Enteritidis	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - objective sampling	Total units positive for Salmonella spp.	11	11
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - objective sampling	Total units positive for Salmonella spp.	11	11

Date of Modification	Species	Column	Old Value	New Value
2009-12-21	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - objective sampling	S. Montevideo	1	1
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - objective sampling	S. Montevideo	1	1
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official and industry sampling	S. Montevideo	1	1
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official and industry sampling	S. Montevideo	1	1
2010-01-11	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	Total units positive for Salmonella spp.	10	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	Total units positive for Salmonella spp.	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	Total units positive for Salmonella spp.	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	Total units positive for Salmonella spp.	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	Total units positive for Salmonella spp.	7	7
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - industry sampling - census sampling	Total units positive for Salmonella spp.	7	7

Date of Modification	Species	Column	Old Value	New Value
2010-01-11	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - suspect sampling	Units tested	10	10
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - suspect sampling	Units tested	10	10
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - suspect sampling	S. Montevideo	0	0
	Gallus gallus (fowl) - laying hens - during production period - - faeces - Control and eradication programmes - official sampling - suspect sampling	S. Montevideo	0	0

Table Salmonella in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Salmonella spp.	S. Agona	S. Coeln	S. Derby	S. Enteritidis	S. Hindmarsh	S. Infantis	S. Ohio
Cattle (bovine animals) - - faeces - Monitoring - official sampling	VARS	animal	386	1	0	0	0	0	0	1	0
Pigs - breeding animals - - faeces - Survey - EU baseline survey (Breeding holdings) [1]	VARS	single	270	0	0	0	0	0	0	0	0
Pigs - breeding animals - - faeces - Survey - EU baseline survey (Prod.holdings) [2]	VARS	single	100	5	0	0	0	3	0	0	1
Pigs - breeding animals - - faeces - Survey - EU baseline survey (Production hold.) [3]	VARS	single	1000	13	0	0	0	10	3	0	0
Pigs - breeding animals - - faeces - Survey - EU baseline survey (Production holdings) [4]	VARS	single	870	26	1	6	1	6	0	8	0
Pigs - fattening pigs - - organ/tissue - Control and eradication programmes - official sampling - suspect sampling	VARS	animal	15	15	0	0	0	0	0	0	0

	S. Stanleyville	S. Typhimurium	S. Virginia	Salmonella spp., unspecified	S. enterica subsp. enterica
Cattle (bovine animals) - - faeces - Monitoring - official sampling	0	0	0	0	0
Pigs - breeding animals - - faeces - Survey - EU baseline survey (Breeding holdings) [1]	0	0	0	0	0
Pigs - breeding animals - - faeces - Survey - EU baseline survey (Prod.holdings) [2]	0	0	0	0	1
Pigs - breeding animals - - faeces - Survey - EU baseline survey (Production hold.) [3]	0	0	0	0	0
Pigs - breeding animals - - faeces - Survey - EU baseline survey (Production holdings) [4]	2	0	1	0	1

Table Salmonella in other animals

	S. Stanleyville	S. Typhimurium	S. Virginia	Salmonella spp., unspecified	S. enterica subsp. enterica
Pigs - fattening pigs - - organ/tissue - Control and eradication programmes - official sampling - suspect sampling	0	0	0	0	15

Comments:

[1)] pooled samples
[2)] Artificially pooled samples
[3)] individual samples
[4)] pooled samples

2.1.5 Salmonella in feedingstuffs

A. Salmonella spp. in feed

History of the disease and/or infection in the country

VARS

In Slovenia feed was surveilled for the presence of Salmonella for decades. The prevalence was rather low and the isolated strains were generally the most susceptible to antimicrobials of all the strains tested. Many serovars were isolated only from feed and were not found later in the chain: feed-animal-food.

National evaluation of the recent situation, the trends and sources of infection

The recent situation reflects the efforts of controling Salmonella in feed and is considered good.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

In 2008 only 5 strains of Salmonella were isolated from official samples of feed, belonging to 4 serovars: S. Infantis (2), S. Senftenberg (1), S.Havana (1), S.Kedougu (1). Another 64 strains were isolated from industry sampling during ingredients control belonging to 12 serovars, mostly Havana.

Of two industry strains tested Havana was fully susceptible to all the antimicrobials and Ohio was resistant to Ciprofloxacin, Nalidixic acid, Sulfonamides, Streptomycin, Trimethoprim and Tetracyclin. It seems that in-process industry measures are rather effective and only a small proportion of Salmonella strains ends in final products or contaminate feed from other sources. However pentaresistant strain indicates that this source of multiresistant strains should not be neglected.

Recent actions taken to control the zoonoses

Feedinstuffs

Monitoring system:

- sampling strategy: target sampling (in accordance with the Programme of feed control in 2008)
- in approved and registred FBOs (including agricultural holdings, import)
- preventive measures: own controls by holders of activity (HACCP)
- control programme: Program of feed control in 2008 in accordance with Article 7(2) and Article 78(4) of the Veterinary Compliance Criteria Act (VCCA; UL RS 93/05), and Articles 41, 43, and 45(2a) of the Regulation (EC) No 882/2004 (OJ L 165/04)
- measures in case of positive findings: in accordance with Article 4(2) and Article 8(5) of the Rules on feed safety criteria (UL RS 101/06, 70/07, 10/09)

- notification system in place: RASFF system and mutual notification between the CA in the sector of food safety, in accordance with Decree coordinating the operation of ministries and agencies within them that are competent for food safety at inclusion into the risk analysis process (UL RS 56/03)

Additional information

Feedinstuffs
- frequency of the sampling - phases: approved feed manufacturers (30 samples),other approved FBOs (placing on the market) + registered FBOs (30 samples),agricultural holdings (30 samples), import (10 samples)
- description of sampling techniques: in accordance with Rules of the offical methods of sampling for monitoring and inspection and control of animal feed, additives and premixes (UL RS 41/03, 28/04)
- definision of positive finding: analysis result (1= positive, 0= negative)
- analytical methods used: ISO/FDIS 6579:2002 SOP 221

Table Salmonella in feed material of animal origin

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Feed material of land animal origin - dairy products	VARS	batch	25g	4	0			
Feed material of marine animal origin - fish meal	VARS	batch	25g	2	0			

Table Salmonella in other feed matter

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Havana	S. Kedougou	S. Typhimurium	Salmonella spp., unspecified
Feed material of cereal grain origin - maize	VARS	batch	25g	1	0					
Feed material of cereal grain origin - maize - derived	VARS	batch	25g	2	0					
Feed material of cereal grain origin - wheat derived	VARS	batch	25g	1	0					
Feed material of oil seed or fruit origin - soya (bean) derived	VARS	batch	25g	9	1		1			
Feed material of oil seed or fruit origin - sunflower seed derived	VARS	batch	25g	4	0					
Other feed material - forages and roughages	VARS	batch	25g	5	1			1		

Table Salmonella in compound feedingstuffs

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Enteritidis	S. Infantis	S. Senftenberg	S. Typhimurium
Compound feedingstuffs for cattle - final product	VARS	batch	25g	13	0				
Compound feedingstuffs for fish (final product)	VARS	batch	25g	2	1			1	
Compound feedingstuffs for pigs - final product	VARS	batch	25g	18	1		1		
Compound feedingstuffs for poultry (non specified) - final product [1]	VARS	batch	25g	3	0				
Compound feedingstuffs for poultry - laying hens - final product	VARS	batch	25g	15	1		1		
Compound feedingstuffs for rabbits (final product)	VARS	batch	25g	1	0				
Compound feedingstuffs for turkeys (final product)	VARS	batch	25g	4	0				
Compund feedingstuffs for poultry - broilers - final product	VARS	batch	25g	13	0				
Other feed material (final product) [2]	VARS	batch	25	1	0				
Pet food (final product) [3]	VARS	batch	25g	1	0				
Pet food - final product - pelleted [4]	VARS	batch	25g	2	0				

Comments:

[1] Compound feedingstuffs for ostrich
[2] Pet food for birds
[3] Pet food for cats
[4] Pet food for dogs

2.1.6 Salmonella serovars and phagetype distribution

The methods of collecting, isolating and testing of the Salmonella isolates are described in the chapters above respectively for each animal species, foodstuffs and humans. The serotype and phagetype distributions can be used to investigate the sources of the Salmonella infections in humans. Findings of same serovars and phagetypes in human cases and in foodstuffs or animals may indicate that the food category or animal species in question serves as a source of human infections. However as information is not available from all potential sources of infections, conclusions have to be drawn with caution.

Table Salmonella serovars in animals

Serovars	Reptiles		Ratites (ostrich, emu, nandu)		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory		**10**		**2**	**1**		**55**		**71**	**1**	**11**	
Number of isolates serotyped	**0**	**10**	**0**	**2**	**1**	**0**	**55**	**0**	**71**	**1**	**11**	**0**
Number of isolates per serovar												
S. Agona							1		1			
S. Choleraesuis							1					
S. Coeln							6					
S. Derby							1					
S. Enteritidis				1			19		37	1		
S. Hindmarsh							3					
S. Infantis					1		10		7		2	

Table Salmonella serovars in animals

Serovars	Reptiles		Ratites (ostrich, emu, nandu)		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory		**10**		**2**	**1**		**55**		**71**	**1**	**11**	
Number of isolates serotyped	**0**	**10**	**0**	**2**	**1**	**0**	**55**	**0**	**71**	**1**	**11**	**0**
Number of isolates per serovar												
S. Kingston											1	
S. Kottbus											2	
S. London											1	
S. Montevideo									3			
S. Muenchen		1										
S. Newport											1	
S. Ohio									4			
S. Othmarschen		1										
S. Paratyphi B							1					
S. Saintpaul									9		2	
S. Stanleyville				1			2				2	
S. Typhimurium							8		9			

Table Salmonella serovars in animals

Serovars	Reptiles		Ratites (ostrich, emu, nandu)		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Other poultry	
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory		**10**		**2**	**1**		**55**		**71**	**1**	**11**	
Number of isolates serotyped	**0**	**10**	**0**	**2**	**1**	**0**	**55**	**0**	**71**	**1**	**11**	**0**
Number of isolates per serovar												
S. Virginia							1					
S. enterica subsp. diarizonae		6										
Salmonella spp., unspecified		2										
S. Chartres									1			
S. enterica subsp. enterica, rough							2					

Footnote:

Other poultry includes turkey.

Table Salmonella serovars in food

Serovars	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin		Other processed food products and prepared dishes - unspecified		Snails
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory	**1**		**5**		**13**		**18**		**4**		**3**		**4**
Number of isolates serotyped	**1**	**0**	**5**	**0**	**13**	**0**	**18**	**0**	**4**	**0**	**3**	**0**	**4**
Number of isolates per serovar													
S. Abony													
S. Agona													
S. Bredeney									1				
S. Coeln							2						
S. Derby									3		1		
S. Enteritidis	1				2		1						
S. Fann													1
S. Fayed							1						
S. Infantis					7						2		
S. Kedougou													
S. Kottbus							1						

Table Salmonella serovars in food

Serovars	Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Other poultry		Other products of animal origin		Other processed food products and prepared dishes - unspecified		Snails
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**
Number of isolates in the laboratory	**1**		**5**		**13**		**18**		**4**		**3**		**4**
Number of isolates serotyped	**1**	**0**	**5**	**0**	**13**	**0**	**18**	**0**	**4**	**0**	**3**	**0**	**4**
Number of isolates per serovar													
S. Livingstone													
S. London													
S. Mbandaka					1								
S. Paratyphi B													1
S. Saintpaul					2		7						
S. Senegal													
S. Stanleyville					1		4						
S. Stourbridge													
S. Typhimurium			5				2						
S. enterica subsp. arizonae													2

Table Salmonella serovars in food

Serovars	Snails	Fish - unspecified		Spices and herbs - dried		Bakery products - bread		Meat from bovine animals and pig	
Sources of isolates	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory		**1**		**1**		**1**		**22**	
Number of isolates serotyped	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**21**	**0**
Number of isolates per serovar									
S. Abony								2	
S. Agona				1					
S. Bredeney									
S. Coeln									
S. Derby								2	
S. Enteritidis									
S. Fann									
S. Fayed									
S. Infantis									
S. Kedougou						1			
S. Kottbus									
S. Livingstone								1	

Table Salmonella serovars in food

Serovars	Snails	Fish - unspecified		Spices and herbs - dried		Bakery products - bread		Meat from bovine animals and pig	
Sources of isolates	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory		**1**		**1**		**1**		**22**	
Number of isolates serotyped	**0**	**1**	**0**	**1**	**0**	**1**	**0**	**21**	**0**
Number of isolates per serovar									
S. London								4	
S. Mbandaka									
S. Paratyphi B									
S. Saintpaul								1	
S. Senegal								1	
S. Stanleyville									
S. Stourbridge								1	
S. Typhimurium		1						9	
S. enterica subsp. arizonae									

Footnote:

Data for Other poultry include: fresh meat from turkey, turkey meat preparations and turkey minced meat.

Data for Meat from bovine animals and pig include: meat preparations and minced meat.

Table Salmonella serovars in feed

Serovars	Feed material of oil seed or fruit origin - soya (bean) derived - at farm - feed sample - Monitoring - industry sampling		All feedingstuffs - in total - Monitoring - official sampling		Feed material of land animal origin - meat meal - at feed mill - Monitoring - industry sampling	
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory	**1**		**5**		**63**	
Number of isolates serotyped	**1**	**0**	**5**	**0**	**63**	**0**
Number of isolates per serovar						
S. Albany					1	
S. Enteritidis					2	
S. Gdansk					2	
S. Havana			1		33	
S. Infantis			2		5	
S. Irumu					1	
S. Kedougou			1			
S. Kisii					5	
S. Livingstone					2	
S. Mbandaka	1					
S. Montevideo					4	

Table Salmonella serovars in feed

Serovars	Feed material of oil seed or fruit origin - soya (bean) derived - at farm - feed sample - Monitoring - industry sampling		All feedingstuffs - in total - Monitoring - official sampling		Feed material of land animal origin - meat meal - at feed mill - Monitoring - industry sampling	
Sources of isolates	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**	**Monitoring**	**Clinical**
Number of isolates in the laboratory	**1**		**5**		**63**	
Number of isolates serotyped	**1**	**0**	**5**	**0**	**63**	**0**
Number of isolates per serovar						
S. Rissen					7	
S. Senftenberg			1			
S. Typhimurium					1	

2.1.7 Antimicrobial resistance in Salmonella isolates

A. Antimicrobial resistance in Salmonella in cattle

Sampling strategy used in monitoring

Frequency of the sampling

Subjected to test are isolates obtained within the monitoring of zoonoses and zoonotic agents and from all other samples tested within National Veterinary Institute. At least one isolate from each epidemiological unit.

Type of specimen taken

See the monitoring for Salmonella in bovine animals.

Methods of sampling (description of sampling techniques)

See the monitoring for Salmonella in bovine animals.

Procedures for the selection of isolates for antimicrobial testing

At least one isolate from each epidemiological unit.

Methods used for collecting data

Report of results obtained within the monitoring are reported to the VARS Main Office.

Laboratory methodology used for identification of the microbial isolates

See the monitoring for Salmonella in bovine animals.
Broth dilution method according to CLSI and CRL AR recommendations.

Laboratory used for detection for resistance

Antimicrobials included in monitoring

MIC was determined by broth dilution method using CRL AR recommended antimicrobial pannel:
Aminoglycosides: Streptomycin, Kanamycin, Gentamycin
Amphenicols: Chloramphenicol, fluorphenicol
Beta-lactamic: Ampicillin
Cephalosporins: Cephotaxim,Ceftazidim
Quinolones: Nalidixinic acid
Fluoroquinolones: Ciprofloxacin
Sulphonamides: Sulfonamides
Trimethoprim
Tetracyclines: Tetracycline

Breakpoints used in testing

According to CLSI and CRL AR recommendations.

Control program/mechanisms

Recent actions taken to control the zoonoses

Introduced monitoring.

Notification system in place

NRL-Salmonella reports to VARS at least once a year.

Results of the investigation

In 2008 only one Salmonella enterica strain was isolated from cattle, belonging to serovar Infantis. It was resistant to Ciprofloxacin, Streptomycin, Sulfonamide and Tetracyclin. Although cattle is not considered an important source of resistant Salmonella for humans this indicates that the danger of the spread of multiresistant strains to human population should not be neglected.

National evaluation of the recent situation, the trends and sources of infection

Till the year 2005 the situation was considered to be good, but isolation of multiresistant S. Typhimurium strains in 2005 and 2007 and S. Infantis in 2008 indicates the presence of multiresistant strains within cattle population. More data are needed to evaluate the risk of beef and beef products consumption for humans.

Relevance of the findings in animals to findings in foodstuffs and to human cases

The incidence of multiresistant S. Infantis strain indicates that cattle might become a source of such strains for humans, too.

B. Antimicrobial resistance in Salmonella in pigs

Sampling strategy used in monitoring

Frequency of the sampling

Subjected to test are isolates from all samples tested within National Veterinary Institute. At least one isolate from each epidemiological unit.

Type of specimen taken

Faeces

Procedures for the selection of isolates for antimicrobial testing

At least one isolate from each epidemiological unit.

Laboratory methodology used for identification of the microbial isolates

Broth dilution method according to CLSI and CRL AR recommendations and selected strains also with additional pannel of antimicrobials by disc diffusion method according to the CLSI (former NCCLS).

Laboratory used for detection for resistance

Antimicrobials included in monitoring

MIC was determined by broth dilution method using CRL AR recommended antimicrobial pannel:
Aminoglycosides: Streptomycin, Kanamycin, Gentamycin
Amphenicols: Chloramphenicol, fluorphenicol
Beta-lactamic: Ampicillin
Cephalosporins: Cephotaxim,Ceftazidim
Quinolones: Nalidixinic acid
Fluoroquinolones: Ciprofloxacin
Sulphonamides: Sulfonamides
Trimethoprim
Tetracyclines: Tetracycline

Selected strains were tested also with disc diffusion method for:
Aminoglycosides: Neomycin
Beta-lactamic: Amoxicillin, Amoxicillin/Clavulanic acid
Cephalosporins: Cephalotin, Cefpodoxim
Fluoroquinolones: Enrofloxacin
Trimethoprim + Sulfonamide

Breakpoints used in testing

According to CLSI (former NCCLS) and CRL AR cecommendations.

Notification system in place

NRL-Salmonella reports to VARS at least once a year.

Results of the investigation

Of 14 strains, belonging to 9 serovars, tested with broth dilution method and 8 of these strains tested with additional pannel of antimicrobials by disc diffusion method, all were fully sensitive, which is surprisingly good, compared to the results of previous years.

National evaluation of the recent situation, the trends and sources of infection

In 2008 all the tested strains were fully sensitve, which is surprisingly good. Since multiresistant strains of S. Typhimurium were found in previous years, rational use of antimicrobials and further monitoring and effective measures of Salmonella control in primary production are still needed.

Relevance of the findings in animals to findings in foodstuffs and to human cases

The results of antimicrobial resistance testing in 2008 indicate a progress in reducing the prevalence of resistant strains. Nevertheless possible spread of multiresistant S. Typhimurium and other serovars should still be monitored and adequate measures should be taken to minimise this threat.

C. Antimicrobial resistance in Salmonella in poultry

Sampling strategy used in monitoring

Frequency of the sampling

Subjected to test are isolates obtained within the monitoring of zoonoses and zoonotic agents and from all other samples tested within National Veterinary Institute. At least one isolate from each epidemiological unit.

Type of specimen taken

See the monitoring for Salmonella in poultry.

Methods of sampling (description of sampling techniques)

See the monitoring for Salmonella in poultry.

Procedures for the selection of isolates for antimicrobial testing

At least one isolate from each epidemiological unit.

Methods used for collecting data

Report of results obtained within the monitoring in processing plants, are reported to the VARS Main Office.

Laboratory methodology used for identification of the microbial isolates

See the monitoring for Salmonella in poultry.
Broth dilution method according to CLSI and CRL AR recommendations and selected strains also with additional pannel of antimicrobials by disc diffusion method according to the CLSI (former NCCLS).

Laboratory used for detection for resistance

Antimicrobials included in monitoring

MIC was determined by broth dilution method using CRL AR recommended antimicrobial pannel:
Aminoglycosides: Streptomycin, Kanamycin, Gentamycin
Amphenicols: Chloramphenicol, fluorphenicol
Beta-lactamic: Ampicillin
Cephalosporins: Cephotaxim,Ceftazidim
Quinolones: Nalidixinic acid
Fluoroquinolones: Ciprofloxacin
Sulphonamides: Sulfonamides
Trimethoprim
Tetracyclines: Tetracycline

Selected strains were tested also with disc diffusion method for:
Aminoglycosides: Neomycin
Beta-lactamic: Amoxicillin, Amoxicillin/Clavulanic acid
Cephalosporins: Cephalotin, Cefpodoxim
Fluoroquinolones: Enrofloxacin

Trimethoprim + Sulfonamide

Breakpoints used in testing

According to CLSI (former NCCLS) and CRL AR recommendations.

Control program/mechanisms

Recent actions taken to control the zoonoses

Introduced monitoring.

Notification system in place

NRL-Salmonella reports to VARS at least once a year.

Results of the investigation

Twenty five strains, isolated from fowl belonging to five serovars were tested with broth dilution method. All but five were fully sensitive. Two strains of serovar Enteritidis out of 17 were resistant to Nalidixic acid. One strain of serovar Infantis was resistant to nalidixic acid, Sulfonamides and Tetracyclin and the other also to Streptomycin. The only strain of Typhimurium was resistant to Ampicillin, Chloramphenicol, Sulfonamides, Streptomycin and Tetracyclin.
In 18 strains of serovar Enteritidis tested also with disc diffusion method no additional resistance was found.

National evaluation of the recent situation, the trends and sources of infection

We detected multiresistant strains from fowl although their prevalence is low. But considering high consumption of fowl meat ant meat products, fowl might be an important source of resistant strains.

Relevance of the findings in animals to findings in foodstuffs and to human cases

Although poultry is considered to be one of major sources of Salmonella for humans, it is not considered to be the major source of multiresistant strains, too. The most prevalent serovar used to be S. Enteritidis, which was mostly well susceptible to antimicrobials. But the resistance to quinolones was found in two strains. Fortunately the overall prevalence of Salmonella is not very high as shown by the Baseline studies on the prevalence of Salmonella spp. in laying hens and broilers. The measures to reduce Salmonella prevalence are implemented and are expected to reduce the risk.

D. Antimicrobial resistance in Salmonella in foodstuff derived from cattle

Sampling strategy used in monitoring

Frequency of the sampling

Subjected to test are isolates obtained within the monitoring of zoonoses and zoonotic agents and from all other samples tested within National Veterinary Institute. At least one isolate from each epidemiological unit.

Type of specimen taken

See the monitoring for Salmonella in bovine meat - at procesing plants.

Methods of sampling (description of sampling techniques)

See the monitoring for Salmonella in bovine meat - at procesing plants.

Procedures for the selection of isolates for antimicrobial testing

At least one isolate from each epidemiological unit.

Methods used for collecting data

Report of results obtained within the monitoring in procesing plants are reported to the VARS Main Office.

Laboratory methodology used for identification of the microbial isolates

See the monitoring for Salmonella in bovine meat - at procesing plants.
All isolates were from industry sampling during in-process control and were not tested for antimicrobial resistance.

Control program/mechanisms

Recent actions taken to control the zoonoses

Introduced monitoring.

Notification system in place

NRL-Salmonella reports to VARS at least once a year.

Results of the investigation

All the isolated strains were from industry sampling during in-process control. Only one strain of serovar Enteritidis was isolated from beef and 19 belonging to 7 serovars (including Typhimurium)) from mixed bovine and pig meat products. Since the contaminated foods were supposed to be discarded the isolates were not tested for antimicrobial resistance.

National evaluation of the recent situation, the trends and sources of infection

It seems that cattle as such is not a major source of Salmonella for people. Most likely contamination of food containing beef occures later by mixing it with other kinds of meat or other food ingredients. So in-process control in food industry is crucial for preventing food-borne Salmonella infections in humans.

Relevance of the findings in animals to findings in foodstuffs and to human cases

Cattle doesn't seem to be a major source of Salmonella infections in humans.

E. Antimicrobial resistance in Salmonella in foodstuff derived from pigs

Sampling strategy used in monitoring

Frequency of the sampling

Subjected to test are isolates obtained within the monitoring of zoonoses and zoonotic agents.Since no isolates were obtained from these kinds of samples they were not tested for antimicrobial resiastance.
See the monitoring for Salmonella in pig meat - at processing plants

Methods used for collecting data

Report of results obtained within the monitoring in processing plants, are reported to the VARS Main Office.

Control program/mechanisms

Recent actions taken to control the zoonoses

Introduced monitoring.

Notification system in place

NRL-Salmonella reports to VARS at least once a year.

National evaluation of the recent situation, the trends and sources of infection

In pigs no resistant strains were found in 2008. Since multiresistant strains were found in previous years, monitoring of isolates from pigs, pork and other food containing ingredients of pig origin should not be neglected.

Relevance of the findings in animals to findings in foodstuffs and to human cases

The spread of multiresistant Salmonella strains in pigs in previous years should be considered as a warning of potential risk for humans.

F. Antimicrobial resistance in Salmonella in foodstuff derived from poultry

Sampling strategy used in monitoring

Frequency of the sampling

Subjected to test are isolates obtained within the monitoring of zoonoses and zoonotic agents and from all other samples tested within National Veterinary Institute. At least one isolate from each epidemiological unit.

Type of specimen taken

See the monitoring for Salmonella in poultry meat - at processing plants.

Methods of sampling (description of sampling techniques)

See the monitoring for Salmonella in poultry meat - at processing plants.

Procedures for the selection of isolates for antimicrobial testing

At least one isolate from each epidemiological unit.

Methods used for collecting data

Report of results obtained within the monitoring in processing plants, are reported to the VARS Main Office.

Laboratory methodology used for identification of the microbial isolates

See the monitoring for Salmonella in poultry meat - at processing plants.
Broth dilution method according to CLSI and CRL AR recommendations and selected strains also with additional pannel of antimicrobials by disc diffusion method according to the CLSI (former NCCLS).

Laboratory used for detection for resistance

Antimicrobials included in monitoring

MIC was determined by broth dilution method using CRL AR recommended antimicrobial pannel:
Aminoglycosides: Streptomycin, Kanamycin, Gentamycin
Amphenicols: Chloramphenicol, fluorphenicol
Beta-lactamic: Ampicillin
Cephalosporins: Cephotaxim,Ceftazidim
Quinolones: Nalidixinic acid
Fluoroquinolones: Ciprofloxacin
Sulphonamides: Sulfonamides
Trimethoprim
Tetracyclines: Tetracycline

Selected strains were tested also with disc diffusion method for:
Aminoglycosides: Neomycin
Beta-lactamic: Amoxicillin, Amoxicillin/Clavulanic acid
Cephalosporins: Cephalotin, Cefpodoxim
Fluoroquinolones: Enrofloxacin
Trimethoprim + Sulfonamide

Breakpoints used in testing

According to CLSI (former NCCLS) and CRL AR recommendations.

Control program/mechanisms

Recent actions taken to control the zoonoses

Introduced monitoring.

Notification system in place

NRL-Salmonella reports to VARS at least once a year.

Results of the investigation

In Gallus gallus 5 strains belonging to 3 serovars were tested. S.Enteritidis, and Saintpaul were fully susceptible and two strains of S.Infantis were resistant to Ciprofloxacin, Nalidixyic acid, Sulfonamides and Tetracyclin.
In turkeys 14 strains belonging to 6 serovars were tested.In 4 strains of Saintpaul one fas fully susceptibe, two were resistant to Sulfonamides and Tetracyclin and one also to Ampicillin and Trimethopim. Two strains of Typhimurium were resiatnt to Ampcillin, Chloramphenicol, Florfenicol, Sulfonamides, Streptomycin and Tetracyclin. Serovars Fayed, Kottbus and Stanleyville were fully susceptible.

National evaluation of the recent situation, the trends and sources of infection

Although the results of poultry examinations for Salmonella do not indicate the poultry to be the major source of multiresistant strains, the examiantions of food, derived from poultry, does not corroborate this opinion. Both fowl and turkeys seem to be a possible source of multiresistant strains of S. Infantis, S. Saintpaul and Typhimurium. The other serovars, isolated from foodstuff derived from poultry, were more susceptible. Regarding big consumption of poultry meat, it should not be neglected as a possible source of multiresistant strains for humans.

Relevance of the findings in animals to findings in foodstuffs and to human cases

The findings indicate that poultry (especially turkeys) might become an important source of multiresistant Salmonella strains for humans.

G. Antimicrobial resistance of Salmonella spp. in food

Sampling strategy used in monitoring

Frequency of the sampling

Isolates were obtained within annual monitoring programme.
Sampling strategy used in monitoring and frequency of the sampling were described in Monitoring system for: Salmonella spp. in food, Salmonella spp. in food - Meat from bovine animals and pig, Salmonella spp. in turkey meat and products thereof and Salmonella spp. in broiler meat and products thereof.

Methods of sampling (description of sampling techniques)

See Monitoring system for: Salmonella spp. in food, Salmonella spp. in food - Meat from bovine animals and pig, Salmonella spp. in turkey meat and products thereof and Salmonella spp. in broiler meat and products thereof.

Procedures for the selection of isolates for antimicrobial testing

6 isolates of Salmonella derived from monitoring programe were taken for testing of antimicrobial resistance.

Methods used for collecting data

Isolates were tested in one of delegated laboratoratories for analyses of official samples. Resistance data was reported to HIRS.

Laboratory methodology used for identification of the microbial isolates

Bacteriological method: EN/ISO 6579:2002

Laboratory used for detection for resistance

Antimicrobials included in monitoring

MIC was determined by broth dilution method using CRL AR recommended antimicrobial pannel:
Aminoglycosides: Streptomycin, Kanamycin, Gentamycin
Amphenicols: Chloramphenicol, fluorphenicol
Beta-lactamic: Ampicillin
Cephalosporins: Cephotaxim,Ceftazidim
Quinolones: Nalidixinic acid
Fluoroquinolones: Ciprofloxacin
Sulphonamides: Sulfonamides
Trimethoprim
Tetracyclines: Tetracycline

Selected strains were tested also with disc diffusion method for:
Aminoglycosides: Neomycin
Beta-lactamic: Amoxicillin, Amoxicillin/Clavulanic acid
Cephalosporins: Cephalotin, Cefpodoxim
Fluoroquinolones: Enrofloxacin

Trimethoprim + Sulfonamide

Breakpoints used in testing

Agar Diffusions method according to CLSI (Clinical Laboratory Standard Institute).

Control program/mechanisms

Recent actions taken to control the zoonoses

Introduced monitoring.

Notification system in place

Delegated laboratory reports to HIRS at least once a year.

Results of the investigation

In 2008,6 isolates were tested for antimicrobial susceptibility (2 isolates of S. Typhimurium, 2 isolates of S. Saintpaul, 1 isolate of S. Stourbridge and 1 isolate S. Livingstone).

One isolate of S. Typhimurium was resistant to 6 antimicrobials (ampicillin, chloramphenicol, streptomycin, sulfonamide, tetracycline, amoxycillin/clavulanic acid).
One isolate of S. Typhimurium was resistant to 4 antimicrobials (ampicillin, streptomycin, sulfonamide, tetracycline).
One isolate of S. Saintpaul was resistant to 1 antimicrobial (nalidixic acid).
Other 3 isolates were fully susceptible.

Table Antimicrobial susceptibility testing of S. Agona in Pigs - at slaughterhouse - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Agona		Pigs - at slaughterhouse - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																			1			
	Kanamycin	13	1	0																			1			
	Neomycin	12	1	0																		1				
	Streptomycin	11	1	0										1												
Amphenicols	Chloramphenicol	12	1	0																		1				
	Florfenicol	16	1	0																			1			
Cephalosporins	Cefotaxim	14	1	0																						
	Cefpodoxime	17	0	0																						
	Ceftazidim	14	0	0																						
	Cephalothin	14	0	0																						
Fluoroquinolones	Ciprofloxacin	15	1	0																						
	Enrofloxacin	16	1	0																						
Penicillins	Amoxicillin	13	1	0																		1				
	Amoxicillin / Clavulanic acid	13	1	0																						1
	Ampicillin	13	1	0																	1					
Quinolones	Nalidixic acid	13	1	0																			1			
Sulfonamides	Sulfonamide	12	1	0																			1			
Tetracyclines	Tetracyclin	11	1	0																				1		
Trimethoprim	Trimethoprim	10	1	0																						

Table Antimicrobial susceptibility testing of S. Agona in Pigs - at slaughterhouse - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Agona		Pigs - at slaughterhouse - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	1	0																						

S. Agona		Pigs - at slaughterhouse - Survey - EU baseline survey						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	Cefotaxim						1	
	Cefpodoxime							
	Ceftazidim							
	Cephalothin							
Fluoroquinolones	Ciprofloxacin							1
	Enrofloxacin						1	
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid							

Table Antimicrobial susceptibility testing of S. Agona in Pigs - at slaughterhouse - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Agona		Pigs - at slaughterhouse - Survey - EU baseline survey						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim		1					
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides					1		

Table Antimicrobial susceptibility testing of S. Agona in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. Agona		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1															
	Kanamycin	32	1	0										1												
	Neomycin		0	0																						
	Streptomycin	32	1	0											1											
Amphenicols	Chloramphenicol	16	1	0											1											
	Florfenicol		1	1										1												
Cephalosporins	Cefotaxim	0.5	1	0					1																	
	Ceftazidim	2	1	0							1															
Fluoroquinolones	Ciprofloxacin	0.06	1	0	1																					
Penicillins	Ampicillin	4	1	0								1														
Quinolones	Nalidixic acid	16	1	0										1												
Sulfonamides	Sulfonamide	256	1	0														1								
Tetracyclines	Tetracyclin	8	1	0									1													
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoint values for Florfenicol.

Table Antimicrobial susceptibility testing of S. Coeln in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. Coeln		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	2	0							1	1														
	Kanamycin	32	2	0										2												
	Streptomycin	32	2	0										1	1											
Amphenicols	Chloramphenicol	16	2	0										2												
	Florfenicol		2	2										2												
Cephalosporins	Cefotaxim	0.5	2	0				1	1																	
	Ceftazidim	2	2	0						1	1															
Fluoroquinolones	Ciprofloxacin	0.06	2	0			2																			
Penicillins	Ampicillin	4	2	0								2														
Quinolones	Nalidixic acid	16	2	0										2												
Sulfonamides	Sulfonamide	256	2	0														2								
Tetracyclines	Tetracyclin	8	2	0								1	1													
Trimethoprim	Trimethoprim	2	2	0							2															

Footnote:

No breakpoint values for Florfenicol.

Table Antimicrobial susceptibility testing of S. Derby in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Derby		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	1	0																		1					
	Kanamycin	13	1	0																	1						
	Neomycin	12	1	0															1								
	Streptomycin	11	1	0											1												
Amphenicols	Chloramphenicol	12	1	0															1								
	Florfenicol	16	1	0																							
Cephalosporins	Cefotaxim	14	1	0																							
	Cefpodoxime	17	1	0																					1		
	Ceftazidim	14	1	0																							
	Cephalothin	14	1	0																		1					
Fluoroquinolones	Ciprofloxacin	15	1	0																							
	Enrofloxacin	16	1	0																							
Penicillins	Amoxicillin	13	1	0																			1				
	Amoxicillin / Clavulanic acid	13	1	0																						1	
	Ampicillin	13	1	0																		1					
Quinolones	Nalidixic acid	13	0	0																							
Sulfonamides	Sulfonamide	12	1	0										1													
Tetracyclines	Tetracyclin	11	1	0																	1						
Trimethoprim	Trimethoprim	10	1	0																			1				

Table Antimicrobial susceptibility testing of S. Derby in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Derby		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	1	0																						

S. Derby		Pigs - fattening pigs - - faeces - Survey - EU baseline survey						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol		1					
Cephalosporins	Cefotaxim			1				
	Cefpodoxime							
	Ceftazidim	1						
	Cephalothin							
Fluoroquinolones	Ciprofloxacin					1		
	Enrofloxacin			1				
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid							

Table Antimicrobial susceptibility testing of S. Derby in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Derby		Pigs - fattening pigs - - faeces - Survey - EU baseline survey						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		1						
Antimicrobials:		29	30	31	32	33	34	>=35
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	1						

Table Antimicrobial susceptibility testing of S. Derby in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. Derby		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0						1																
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	0										1												
Amphenicols	Chloramphenicol	16	1	0											1											
	Florfenicol		1	1											1											
Cephalosporins	Cefotaxim	0.5	1	0					1																	
	Ceftazidim	2	1	0								1														
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																				
Penicillins	Ampicillin	4	1	0									1													
Quinolones	Nalidixic acid	16	1	0										1												
Sulfonamides	Sulfonamide	256	1	0														1								
Tetracyclines	Tetracyclin	8	1	0										1												
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Enteritidis in laying hens - Gallus gallus (fowl) - during production period - at farm - environmental sample - dust - Surveillance - quantitative data [Dilution method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - dust - Surveillance																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		5																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	5	0						3	2															
	Kanamycin	32	5	0										5												
	Streptomycin	32	5	0									3	2												
Amphenicols	Chloramphenicol	16	5	0										4	1											
	Florfenicol		5	5										5												
Cephalosporins	Cefotaxim	0.5	5	0				3	2																	
	Ceftazidim	2	5	0						5																
Fluoroquinolones	Ciprofloxacin	0.06	5	1		3	1			1																
Penicillins	Ampicillin	4	5	0								2	3													
Quinolones	Nalidixic acid	16	5	1										4				1								
Sulfonamides	Sulfonamide	256	5	0												1	3	1								
Tetracyclines	Tetracyclin	8	5	0								1	4													
Trimethoprim	Trimethoprim	2	5	0							5															

Footnote:

No breakpoints for Florfenicol

Table Antimicrobial susceptibility testing of S. Enteritidis in breeding flocks for egg production line - Gallus gallus (fowl) - during production period - at farm - environmental sample - dust - Surveillance - official controls - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - breeding flocks for egg production line - during production period - at farm - environmental sample - dust - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)																										
Number of isolates available in the laboratory																										
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	0	0																						
	Kanamycin	13	0	0																						
	Neomycin	12	0	0																						
	Streptomycin	11	0	0																						
Amphenicols	Chloramphenicol	12	0	0																						
	Florfenicol	16	0	0																						
Cephalosporins	Cefotaxim	14	0	0																						
	Cefpodoxime	17	0	0																						
	Ceftazidim	14	0	0																						
	Cephalothin	14	0	0																						
Fluoroquinolones	Ciprofloxacin	15	0	0																						
	Enrofloxacin	16	0	0																						
Penicillins	Amoxicillin	13	0	0																						
	Amoxicillin / Clavulanic acid	13	0	0																						
	Ampicillin	13	0	0																						
Quinolones	Nalidixic acid	13	0	0																						
Sulfonamides	Sulfonamide	12	0	0																						
Tetracyclines	Tetracyclin	11	0	0																						
Trimethoprim	Trimethoprim	10	0	0																						

Table Antimicrobial susceptibility testing of S. Enteritidis in breeding flocks for egg production line - Gallus gallus (fowl) - during production period - at farm - environmental sample - dust - Surveillance - official controls - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - breeding flocks for egg production line - during production period - at farm - environmental sample - dust - Surveillance - official controls																							
Isolates out of a monitoring program (yes/no)																									
Number of isolates available in the laboratory																									
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	0	0																					

S. Enteritidis		Gallus gallus (fowl) - breeding flocks for egg production line - during production period - at farm - environmental sample - dust - Surveillance - official controls						
Isolates out of a monitoring program (yes/no)								
Number of isolates available in the laboratory								
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	Cefotaxim							
	Cefpodoxime							
	Ceftazidim							
	Cephalothin							
Fluoroquinolones	Ciprofloxacin							
	Enrofloxacin							
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid							

Table Antimicrobial susceptibility testing of S. Enteritidis in breeding flocks for egg production line - Gallus gallus (fowl) - during production period - at farm - environmental sample - dust - Surveillance - official controls - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - breeding flocks for egg production line - during production period - at farm - environmental sample - dust - Surveillance - official controls						
Isolates out of a monitoring program (yes/no)								
Number of isolates available in the laboratory								
Antimicrobials:		29	30	31	32	33	34	>=35
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							

Table Antimicrobial susceptibility testing of S. Enteritidis in laying hens - Gallus gallus (fowl) - during production period - at farm - environmental sample - dust - Surveillance - official controls - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - dust - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		5																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	5	0																			3	1	1		
	Kanamycin	13	5	0																			3	2			
	Neomycin	12	5	0																	1	4					
	Streptomycin	11	5	0														2	3								
Amphenicols	Chloramphenicol	12	5	0																			1	1	2	1	
	Florfenicol	16	5	0																			3	1	1		
Cephalosporins	Cefotaxim	14	5	0																							
	Cefpodoxime	17	5	0																							1
	Ceftazidim	14	5	0																							
	Cephalothin	14	5	0																			2	2		1	
Fluoroquinolones	Ciprofloxacin	15	5	0																							1
	Enrofloxacin	16	5	0																	1						
Penicillins	Amoxicillin	13	5	0																		1	1	2	1		
	Amoxicillin / Clavulanic acid	13	5	0																		1			1	2	1
	Ampicillin	13	5	0																	1	1	3				
Quinolones	Nalidixic acid	13	5	1	1															1	1	1	1				
Sulfonamides	Sulfonamide	12	5	0												1					1	1	1	1			
Tetracyclines	Tetracyclin	11	5	0																		2	1	1		1	
Trimethoprim	Trimethoprim	10	6	0																							

Table Antimicrobial susceptibility testing of S. Enteritidis in laying hens - Gallus gallus (fowl) - during production period - at farm - environmental sample - dust - Surveillance - official controls - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - dust - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		5																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	5	0																						

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - dust - Surveillance - official controls						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		5						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	Cefotaxim			1				4
	Cefpodoxime	3		1				
	Ceftazidim			3	1	1		
	Cephalothin							
Fluoroquinolones	Ciprofloxacin					1	1	2
	Enrofloxacin		1	1	2			
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid							

Table Antimicrobial susceptibility testing of S. Enteritidis in laying hens - Gallus gallus (fowl) - during production period - at farm - environmental sample - dust - Surveillance - official controls - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - dust - Surveillance - official controls						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		5						
Antimicrobials:		29	30	31	32	33	34	>=35
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim		3	1	2			
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides		2	2	1			

Table Antimicrobial susceptibility testing of S.Enteritidis in animals

S. Enteritidis		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)				yes						yes			
Number of isolates available in the laboratory				3						18			
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin			3	0					18	0		
	Kanamycin			3	0					18	0		
	Neomycin									18	1		
	Streptomycin			3	0					18	0		
Amphenicols	Chloramphenicol			3	0					18	0		
	Florfenicol			3	0					18	0		
Cephalosporins	Cefotaxim			3	0					18	0		
	Cefpodoxime			3	0					18	0		
	Ceftazidim									18	0		
	Cephalothin									18	0		
Fluoroquinolones	Ciprofloxacin			3	0					18	2		
	Enrofloxacin									18	0		
Fully sensitive	Fully sensitive			3	0					18	14		
Penicillins	Amoxicillin									18	0		
	Amoxicillin / Clavulanic acid									18	0		
	Ampicillin			3	0					18	0		
Quinolones	Nalidixic acid			3	0					18	2		
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial									18	2		
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials									18	1		
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials									18	1		

Table Antimicrobial susceptibility testing of S.Enteritidis in animals

S. Enteritidis		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)				yes						yes			
Number of isolates available in the laboratory				3						18			
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n
Sulfonamides	Sulfonamide			3	0					18	1		
Tetracyclines	Tetracyclin			3	0					18	0		
Trimethoprim	Trimethoprim									18	0		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides									18	0		

Footnote:

Strains from pigs were tested only with broth dilution method, strains from poultry were tested both with broth dilution and disc diffusion methods. The strain was considered resistant to an antimicrobial if found resistant to it with at least one of both methods.
Since no breakpoints for Florfenicol in broth dilution method were found, we used the same brakpoints as for Chloramphenicol.

Table Antimicrobial susceptibility testing of S. Enteritidis in laying hens - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - Surveillance - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - - faeces - Surveillance																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		13																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	13	0																		2		4	3	1	2
	Kanamycin	13	13	0																			3	5	1	2	1
	Neomycin	12	13	1							1										5	3	3	1			
	Streptomycin	11	12	0													2		4	4	1	1					
Amphenicols	Chloramphenicol	12	13	0																	1			2	5	2	2
	Florfenicol	16	13	0																		3	3	5	2		
Cephalosporins	Cefotaxim	14	13	0																							
	Cefpodoxime	17	13	0																							1
	Ceftazidim	14	13	0																							
	Cephalothin	14	13	0																			1	5	4	2	1
Fluoroquinolones	Ciprofloxacin	15	13	0																					1		
	Enrofloxacin	16	13	0																			1				
Penicillins	Amoxicillin	13	13	0																			1	3	5	2	2
	Amoxicillin / Clavulanic acid	13	13	0																				1	1	2	4
	Ampicillin	13	13	0																		2	3	4	2	1	1
Quinolones	Nalidixic acid	13	13	1	1												1				2	1	1	1	4	1	1
Sulfonamides	Sulfonamide	12	13	1						1						1					1	1		3	4		1
Tetracyclines	Tetracyclin	11	13	0																	2		1		4	1	3
Trimethoprim	Trimethoprim	10	13	0																							1

Table Antimicrobial susceptibility testing of S. Enteritidis in laying hens - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - Surveillance - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - - faeces - Surveillance																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		13																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	13	0																						

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - - faeces - Surveillance						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		13						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin	1						
	Kanamycin	1						
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol		1					
	Florfenicol							
Cephalosporins	Cefotaxim						5	8
	Cefpodoxime	2	6	1	2	1		
	Ceftazidim		3	2	5	2	1	
	Cephalothin							
Fluoroquinolones	Ciprofloxacin						2	10
	Enrofloxacin		1	2	2	1	1	5
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid	1	3	1				

Table Antimicrobial susceptibility testing of S. Enteritidis in laying hens - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - Surveillance - quantitative data [Diffusion method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - - faeces - Surveillance						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		13						
Antimicrobials:		29	30	31	32	33	34	>=35
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide		1					
Tetracyclines	Tetracyclin		1		1			
Trimethoprim	Trimethoprim	1	2	3	3	2	1	
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	1		2	4	1	2	3

Table Antimicrobial susceptibility testing of S. Enteritidis in laying hens - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - Surveillance - official controls - quantitative data [Dilution method]

S. Enteritidis		Gallus gallus (fowl) - laying hens - during production period - - faeces - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		13																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	13	0						5	7	1														
	Kanamycin	32	13	0										13												
	Streptomycin	32	13	0									6	7												
Amphenicols	Chloramphenicol	16	13	0										9	4											
	Florfenicol		13	13									1	11	1											
Cephalosporins	Cefotaxim	0.5	13	0				9	4																	
	Ceftazidim	2	13	0						12	1															
Fluoroquinolones	Ciprofloxacin	0.06	13	1		6	6			1																
	Enrofloxacin		0	0																						
Penicillins	Ampicillin	4	13	0								6	7													
Quinolones	Nalidixic acid	16	13	1										11	1			1								
Sulfonamides	Sulfonamide	256	13	0												1	7	5								
Tetracyclines	Tetracyclin	8	13	0								4	8	1												
Trimethoprim	Trimethoprim	2	13	0							13															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Enteritidis in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Enteritidis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		3																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	3	0																				2		1	
	Kanamycin	13	3	0																		1	1			1	
	Neomycin	12	3	0																	2	1					
	Streptomycin	11	3	0															1	1	1						
Amphenicols	Chloramphenicol	12	3	0																			1	2			
	Florfenicol	16	3	0																		2	1				
Cephalosporins	Cefotaxim	14	3	0																							
	Cefpodoxime	17	3	0																							
	Ceftazidim	14	3	0																							
	Cephalothin	14	3	0																				2			1
Fluoroquinolones	Ciprofloxacin	15	3	0																							
	Enrofloxacin	16	3	0																							
Penicillins	Amoxicillin	13	3	0																				1	1	1	
	Amoxicillin / Clavulanic acid	13	3	0																					1		1
	Ampicillin	13	3	0																			2		1		
Quinolones	Nalidixic acid	13	3	0																1		1				1	
Sulfonamides	Sulfonamide	12	3	0													1							1			
Tetracyclines	Tetracyclin	11	3	0																			1	1			
Trimethoprim	Trimethoprim	10	3	0																							

Table Antimicrobial susceptibility testing of S. Enteritidis in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Enteritidis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		3																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	3	0																						1

S. Enteritidis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		3						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	Cefotaxim				1		1	1
	Cefpodoxime	1	1		1			
	Ceftazidim			1	1		1	
	Cephalothin							
Fluoroquinolones	Ciprofloxacin							3
	Enrofloxacin				1	1		1
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid			1				

Table Antimicrobial susceptibility testing of S. Enteritidis in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Enteritidis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		3						
Antimicrobials:		29	30	31	32	33	34	>=35
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide		1					
Tetracyclines	Tetracyclin	1						
Trimethoprim	Trimethoprim		2				1	
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides			1				1

Table Antimicrobial susceptibility testing of S. Enteritidis in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. Enteritidis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		3																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	3	0							3															
	Kanamycin	32	3	0										3												
	Streptomycin	32	3	0									2	1												
Amphenicols	Chloramphenicol	16	3	0										1	2											
	Florfenicol		3	3										3												
Cephalosporins	Cefotaxim	0.5	3	0				3																		
	Ceftazidim	2	3	0						3																
Fluoroquinolones	Ciprofloxacin	0.06	3	0		3																				
Penicillins	Ampicillin	4	3	0								1	2													
Quinolones	Nalidixic acid	16	3	0										3												
Sulfonamides	Sulfonamide	256	3	0													2	1								
Tetracyclines	Tetracyclin	8	3	0								2	1													
Trimethoprim	Trimethoprim	2	3	0							3															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Enteritidis in fresh - Meat from broilers (Gallus gallus) - with skin - at slaughterhouse - animal sample - neck skin - Survey - EU baseline survey - quantitative data [Dilution method]

S. Enteritidis		Meat from broilers (Gallus gallus) - fresh - with skin - - neck skin - Survey - EU baseline survey																							
Isolates out of a monitoring program (yes/no)		yes																							
Number of isolates available in the laboratory		2																							
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	2	0							2														
	Kanamycin	32	2	0										1	1										
	Streptomycin	32	2	0									2												
Amphenicols	Chloramphenicol	16	2	0										1	1										
	Florfenicol		2	2										2											
Fluoroquinolones	Ciprofloxacin	0.06	2	0		1	1																		
Penicillins	Ampicillin	4	2	0									2												
Quinolones	Nalidixic acid	16	2	0										1	1										
Sulfonamides	Sulfonamide	256	2	0														2							
Tetracyclines	Tetracyclin	8	2	0									1	1											
Trimethoprim	Trimethoprim	2	2	0							2														

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of Salmonella in humans, Salmonella Enteritidis

S. Enteritidis		humans	
Isolates out of a monitoring program (yes/no)		no	
Number of isolates available in the laboratory		797	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	0	0
	Kanamycin	0	0
	Streptomycin	0	0
Amphenicols	Chloramphenicol	0	0
Cephalosporins	3rd generation cephalosporins	0	0
Fluoroquinolones	Ciprofloxacin	0	0
Fully sensitive	Fully sensitive	752	94.35
Penicillins	Ampicillin	5	0.63
Quinolones	Nalidixic acid	24	3.02
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	41	5.14
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	2	0.25
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	1	0.13
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	1	0.13
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	0	0
Sulfonamides	Sulfonamide	17	2.14
Tetracyclines	Tetracyclin	2	0.25
Trimethoprim	Trimethoprim	2	0.25
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	2	0.25

Table Antimicrobial susceptibility testing of S. Fayed in fresh - Meat from turkey - with skin - at slaughterhouse - animal sample - neck skin - Monitoring - official sampling - quantitative data [Dilution method]

S. Fayed		Meat from turkey - fresh - with skin - - neck skin - Monitoring - official sampling																							
Isolates out of a monitoring program (yes/no)		yes																							
Number of isolates available in the laboratory		1																							
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1														
	Kanamycin	32	1	0										1											
	Streptomycin	32	1	0											1										
Amphenicols	Chloramphenicol	16	1	0										1											
	Florfenicol		1	1										1											
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																			
Penicillins	Ampicillin	4	1	0								1													
Quinolones	Nalidixic acid	16	1	0										1											
Sulfonamides	Sulfonamide	256	1	0														1							
Tetracyclines	Tetracyclin	8	1	0								1													
Trimethoprim	Trimethoprim	2	1	0							1														

Footnote:

no breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Havana in All feedingstuffs - quantitative data [Dilution method]

S. Havana		All feedingstuffs																							
Isolates out of a monitoring program (yes/no)		yes																							
Number of isolates available in the laboratory		1																							
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1														
	Kanamycin	32	1	0										1											
	Streptomycin	32	1	0										1											
Amphenicols	Chloramphenicol	16	1	0											1										
	Florfenicol		1	1										1											
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																			
Penicillins	Ampicillin	4	1	0								1													
Quinolones	Nalidixic acid	16	1	0										1											
Sulfonamides	Sulfonamide	256	1	0													1								
Tetracyclines	Tetracyclin	8	1	0									1												
Trimethoprim	Trimethoprim	2	1	0							1														

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Hindmarsh in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. Hindmarsh		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0								1														
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	0												1										
Amphenicols	Chloramphenicol	16	1	0											1											
	Florfenicol		1	1											1											
Cephalosporins	Cefotaxim	0.5	1	0					1																	
	Ceftazidim	2	1	0								1														
Fluoroquinolones	Ciprofloxacin	0.06	1	0			1																			
Penicillins	Ampicillin	4	1	0									1													
Quinolones	Nalidixic acid	16	1	0										1												
Sulfonamides	Sulfonamide	256	1	0															1							
Tetracyclines	Tetracyclin	8	1	0									1													
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Infantis in laying hens - Gallus gallus (fowl) - during production period - at farm - animal sample - faeces - Surveillance - official controls - quantitative data [Dilution method]

S. Infantis		Gallus gallus (fowl) - laying hens - during production period - - faeces - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1															
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	1														1								
Amphenicols	Chloramphenicol	16	1	0										1												
	Florfenicol		1	1										1												
Cephalosporins	Cefotaxim	0.5	1	0				1																		
	Ceftazidim	2	1	0						1																
Fluoroquinolones	Ciprofloxacin	0.06	1	1						1																
Penicillins	Ampicillin	4	1	0								1														
Quinolones	Nalidixic acid	16	1	1														1								
Sulfonamides	Sulfonamide	256	1	1																		1				
Tetracyclines	Tetracyclin	8	1	1														1								
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Infantis in Cattle (bovine animals) - at slaughterhouse - animal sample - faeces - Monitoring - official sampling - quantitative data [Dilution method]

S. Infantis		Cattle (bovine animals) - - faeces - Monitoring - official sampling																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1															
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	1														1								
Amphenicols	Chloramphenicol	16	1	0											1											
	Florfenicol		1	1											1											
Cephalosporins	Cefotaxim	0.5	1	0					1																	
	Ceftazidim	2	1	0						1																
Fluoroquinolones	Ciprofloxacin	0.06	1	1						1																
Penicillins	Ampicillin	4	1	0								1														
Quinolones	Nalidixic acid	16	1	1														1								
Sulfonamides	Sulfonamide	256	1	1																	1					
Tetracyclines	Tetracyclin	8	1	1														1								
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Infantis in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. Infantis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	2	0						1			1													
	Kanamycin	32	2	0										1		1										
	Streptomycin	32	2	0										1			1									
Amphenicols	Chloramphenicol	16	2	0											2											
	Florfenicol		2	2										2												
Cephalosporins	Cefotaxim	0.5	2	0					2																	
	Ceftazidim	2	2	0							1	1														
Fluoroquinolones	Ciprofloxacin	0.06	2	0		2																				
Penicillins	Ampicillin	4	2	0								1	1													
Quinolones	Nalidixic acid	16	2	0										2												
Sulfonamides	Sulfonamide	256	2	0													1	1								
Tetracyclines	Tetracyclin	8	2	0									2													
Trimethoprim	Trimethoprim	2	2	0							2															

Footnote:

No breakpoints for Florfenicol

Table Antimicrobial susceptibility testing of S. Infantis in Gallus gallus (fowl) - broilers - at slaughterhouse - animal sample - faeces - Surveillance - official controls - quantitative data [Dilution method]

S. Infantis		Gallus gallus (fowl) - broilers - - faeces - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1															
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	0													1									
Amphenicols	Chloramphenicol	16	1	0											1											
	Florfenicol		1	1											1											
Cephalosporins	Cefotaxim	0.5	1	0					1																	
	Ceftazidim	2	1	0							1															
Fluoroquinolones	Ciprofloxacin	0.06	1	1							1															
Penicillins	Ampicillin	4	1	0									1													
Quinolones	Nalidixic acid	16	1	1														1								
Sulfonamides	Sulfonamide	256	1	1																	1					
Tetracyclines	Tetracyclin	8	1	1														1								
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Infantis in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Infantis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	2	0																			1	1			
	Kanamycin	13	2	0																		1	1				
	Neomycin	12	2	0																	1	1					
	Streptomycin	11	2	0									1		1												
Amphenicols	Chloramphenicol	12	2	0																	1	1					
	Florfenicol	16	2	0																				1			
Cephalosporins	Cefotaxim	14	2	0																							
	Cefpodoxime	17	0	0																							
	Ceftazidim	14	0	0																							
	Cephalothin	14	0	0																							
Fluoroquinolones	Ciprofloxacin	15	2	0																							
	Enrofloxacin	16	2	0																							
Penicillins	Amoxicillin	13	2	0																			1	1			
	Amoxicillin / Clavulanic acid	13	2	0																							1
	Ampicillin	13	2	0																1	1						
Quinolones	Nalidixic acid	13	2	0																			1		1		
Sulfonamides	Sulfonamide	12	2	0															1					1			
Tetracyclines	Tetracyclin	11	2	0																	1		1				
Trimethoprim	Trimethoprim	10	2	0																							

Table Antimicrobial susceptibility testing of S. Infantis in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Infantis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	2	0																						

S. Infantis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		2						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							1
Cephalosporins	Cefotaxim				1		1	
	Cefpodoxime							
	Ceftazidim							
	Cephalothin							
Fluoroquinolones	Ciprofloxacin							2
	Enrofloxacin					1		1
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid		1					

Table Antimicrobial susceptibility testing of S. Infantis in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Diffusion method]

S. Infantis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		2						
Antimicrobials:		29	30	31	32	33	34	>=35
Penicillins	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide							
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim			2				
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides					1	1	

Table Antimicrobial susceptibility testing of S. Infantis - qualitative data

S. Infantis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey		Cattle (bovine animals) - - faeces - Monitoring - official sampling		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		yes		yes		yes		yes	
Number of isolates available in the laboratory		2		1		1		1	
Antimicrobials:		N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	2	0	1	0	1	0	1	0
	Kanamycin	2	0	1	0	1	0	1	0
	Neomycin	2	0						
	Streptomycin	2	0	1	1	1	1	1	0
Amphenicols	Chloramphenicol	2	0	1	0	1	0	1	0
	Florfenicol	2	0	1	0	1	0	1	0
Cephalosporins	Cefotaxim	2	0	1	0	1	0	1	0
	Ceftazidim	2	0	1	0	1	0	1	0
Fluoroquinolones	Ciprofloxacin	2	0	1	1	1	1	1	1
	Enrofloxacin	2	0						
Fully sensitive	Fully sensitive	2	2	1	0	1	0	1	0
Penicillins	Amoxicillin	2	0						
	Amoxicillin / Clavulanic acid	2	0						
	Ampicillin	2	0	1	0	1	0	1	0
Quinolones	Nalidixic acid	2	0	1	1	1	1	1	1
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	2	0	1	0	1	0	1	1
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	2	0	1	1	1	1	1	0
Sulfonamides	Sulfonamide	2	0	1	1	1	1	1	1
Tetracyclines	Tetracyclin	2	0	1	1	1	1	1	1

Table Antimicrobial susceptibility testing of S. Infantis - qualitative data

S. Infantis		Pigs - fattening pigs - - faeces - Survey - EU baseline survey		Cattle (bovine animals) - - faeces - Monitoring - official sampling		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		yes		yes		yes		yes	
Number of isolates available in the laboratory		2		1		1		1	
Antimicrobials:		N	n	N	n	N	n	N	n
Trimethoprim	Trimethoprim	2	0	1	0	1	0	1	0
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	2	0						

Footnote:

Strains from pigs were tested both with disc diffusion and broth dilution methods and strains from other animals only with broth dilution method.
Since no breakpoints for Florfenicol in broth dilution method were found we used the same breakpoints as for Chloramphenicol.

Table Antimicrobial susceptibility testing of S. Infantis in fresh - Meat from broilers (Gallus gallus) - with skin - at slaughterhouse - animal sample - neck skin - Survey - EU baseline survey - quantitative data [Dilution method]

S. Infantis		Meat from broilers (Gallus gallus) - fresh - with skin - - neck skin - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		4																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	4	0						3	1															
	Kanamycin	32	4	0										3	1											
	Streptomycin	32	4	1												3		1								
Amphenicols	Chloramphenicol	16	4	0										1	2	1										
	Florfenicol		4	4										2	1	1										
Fluoroquinolones	Ciprofloxacin	0.06	4	4							2	2														
Penicillins	Ampicillin	4	4	0								1	2	1												
Quinolones	Nalidixic acid	16	4	4														4								
Sulfonamides	Sulfonamide	256	4	4																		4				
Tetracyclines	Tetracyclin	8	4	4														4								
Trimethoprim	Trimethoprim	2	4	0							4															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Infantis - qualitative data

S. Infantis		Meat from broilers (Gallus gallus) - fresh - with skin - - neck skin - Survey - EU baseline survey	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		4	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	4	0
	Kanamycin	4	0
	Streptomycin	4	1
Amphenicols	Chloramphenicol	4	0
	Florfenicol	4	0
Cephalosporins	Cefotaxim	4	0
	Ceftazidim	4	0
Fluoroquinolones	Ciprofloxacin	4	4
Penicillins	Ampicillin	4	0
Quinolones	Nalidixic acid	4	4
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	4	3
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	4	1
Sulfonamides	Sulfonamide	4	4
Tetracyclines	Tetracyclin	4	4
Trimethoprim	Trimethoprim	4	0

Footnote: Since no breakpoints for Florfenicol were found we used the same breakpoints as for Chloramphenicol.

Table Antimicrobial susceptibility testing of S. Kottbus in fresh - Meat from turkey - with skin - at slaughterhouse - animal sample - neck skin - Monitoring - official sampling - quantitative data [Dilution method]

S. Kottbus		Meat from turkey - fresh - with skin - - neck skin - Monitoring - official sampling																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0								1														
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	0											1											
Amphenicols	Chloramphenicol	16	1	0										1												
	Florfenicol		1	1										1												
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																				
Penicillins	Ampicillin	4	1	0									1													
Quinolones	Nalidixic acid	16	1	0										1												
Sulfonamides	Sulfonamide	256	1	0														1								
Tetracyclines	Tetracyclin	8	1	0								1														
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Montevideo in Gallus gallus (fowl) - broilers - at slaughterhouse - animal sample - faeces - Surveillance - official controls - quantitative data [Dilution method]

S. Montevideo		Gallus gallus (fowl) - broilers - - faeces - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1															
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	0											1											
Amphenicols	Chloramphenicol	16	1	0											1											
	Florfenicol		1	1										1												
Cephalosporins	Cefotaxim	0.5	1	0					1																	
	Ceftazidim	2	1	0						1																
Fluoroquinolones	Ciprofloxacin	0.06	1	0			1																			
Penicillins	Ampicillin	4	1	0									1													
Quinolones	Nalidixic acid	16	1	0										1												
Sulfonamides	Sulfonamide	256	1	0													1									
Tetracyclines	Tetracyclin	8	1	0									1													
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Montevideo in laying hens - Gallus gallus (fowl) - during production period - at farm - environmental sample - dust - Surveillance - official controls - quantitative data [Dilution method]

S. Montevideo		Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - dust - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1															
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	0										1												
Amphenicols	Chloramphenicol	16	1	0										1												
	Florfenicol		1	1										1												
Cephalosporins	Cefotaxim	0.5	1	0					1																	
	Ceftazidim	2	1	0							1															
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																				
Penicillins	Ampicillin	4	1	0								1														
Quinolones	Nalidixic acid	16	1	0										1												
Sulfonamides	Sulfonamide	256	1	0													1									
Tetracyclines	Tetracyclin	8	1	0										1												
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

no breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Ohio in Gallus gallus (fowl) - laying hens - at farm - animal sample - faeces - Surveillance - official controls - quantitative data [Dilution method]

S. Ohio		Gallus gallus (fowl) - laying hens - - faeces - Surveillance - official controls																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	2	0							2															
	Kanamycin	32	2	0										2												
	Streptomycin	32	2	0										2												
Amphenicols	Chloramphenicol	16	2	0										1	1											
	Florfenicol		2	2										2												
Cephalosporins	Cefotaxim	0.5	2	0					2																	
	Ceftazidim	2	2	0							2															
Fluoroquinolones	Ciprofloxacin	0.06	2	0		1	1																			
Penicillins	Ampicillin	4	2	0								2														
Quinolones	Nalidixic acid	16	2	0										2												
Sulfonamides	Sulfonamide	256	2	0														2								
Tetracyclines	Tetracyclin	8	2	0									2													
Trimethoprim	Trimethoprim	2	2	0							2															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Ohio - qualitative data

S. Ohio		All feedingstuffs - Surveillance	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		1	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	1	0
	Kanamycin	1	0
	Streptomycin	1	1
Amphenicols	Chloramphenicol	1	0
	Florfenicol	1	0
Cephalosporins	Cefotaxim	1	0
	Ceftazidim	1	0
Fluoroquinolones	Ciprofloxacin	1	1
Penicillins	Ampicillin	1	0
Quinolones	Nalidixic acid	1	1
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	1	1
Sulfonamides	Sulfonamide	1	1
Tetracyclines	Tetracyclin	1	1
Trimethoprim	Trimethoprim	1	0

Footnote:

Since no breakpoints for Florfenicol were found we used the same breakpoints as for Chloramphenicol.

Table Antimicrobial susceptibility testing of S. Ohio in All feedingstuffs - Surveillance - quantitative data [Dilution method]

S. Ohio		All feedingstuffs - Surveillance																							
Isolates out of a monitoring program (yes/no)		yes																							
Number of isolates available in the laboratory		1																							
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0						1															
	Kanamycin	32	1	0										1											
	Streptomycin	32	1	1														1							
Amphenicols	Chloramphenicol	16	1	0											1										
	Florfenicol		1	1										1											
Fluoroquinolones	Ciprofloxacin	0.06	1	1							1														
Penicillins	Ampicillin	4	1	0								1													
Quinolones	Nalidixic acid	16	1	1														1							
Sulfonamides	Sulfonamide	256	1	1																		1			
Tetracyclines	Tetracyclin	8	1	1														1							
Trimethoprim	Trimethoprim	2	1	0							1														

Table Antimicrobial susceptibility testing of S. Saintpaul - qualitative data

S. Saintpaul		Meat from broilers (Gallus gallus) - fresh - with skin - - neck skin - Survey - EU baseline survey		Meat from turkey - fresh - with skin - - neck skin - Monitoring - official sampling	
Isolates out of a monitoring program (yes/no)		yes		yes	
Number of isolates available in the laboratory		1		4	
Antimicrobials:		N	n	N	n
Aminoglycosides	Gentamicin	1	0	4	0
	Kanamycin	1	0	4	0
	Streptomycin	1	0	4	2
Amphenicols	Chloramphenicol	1	0	4	0
	Florfenicol	1	0	4	0
Cephalosporins	Cefotaxim	1	0	4	0
	Ceftazidim	1	0	4	0
Fluoroquinolones	Ciprofloxacin	1	0	4	0
Fully sensitive	Fully sensitive	1	1	4	1
Penicillins	Ampicillin	1	0	4	1
Quinolones	Nalidixic acid	1	0	4	0
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	1	0	4	2
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	1	0	4	1
Sulfonamides	Sulfonamide	1	0	4	3
Tetracyclines	Tetracyclin	1	0	4	3
Trimethoprim	Trimethoprim	1	0	4	1

Table Antimicrobial susceptibility testing of S. Saintpaul - qualitative data

Footnote:

Since no breakpoints were found for Florfenicol we used the same breakpoints as for Cloramphenicol.

Table Antimicrobial susceptibility testing of S. Saintpaul in fresh - Meat from turkey - with skin - at slaughterhouse - animal sample - neck skin - Monitoring - official sampling - quantitative data [Dilution method]

S. Saintpaul		Meat from turkey - fresh - with skin - - neck skin - Monitoring - official sampling																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		4																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	4	0							4															
	Kanamycin	32	4	0										4												
	Streptomycin	32	4	0										1		1	2									
Amphenicols	Chloramphenicol	16	4	0										2	2											
	Florfenicol		4	4										4												
Fluoroquinolones	Ciprofloxacin	0.06	4	0		2	2																			
Penicillins	Ampicillin	4	4	1								1	2				1									
Quinolones	Nalidixic acid	16	4	0										3	1											
Sulfonamides	Sulfonamide	256	4	3													1					3				
Tetracyclines	Tetracyclin	8	4	3									1					3								
Trimethoprim	Trimethoprim	2	4	1							2	1					1									

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Saintpaul in fresh - Meat from broilers (Gallus gallus) - with skin - at slaughterhouse - animal sample - neck skin - Survey - EU baseline survey - quantitative data [Dilution method]

S. Saintpaul		Meat from broilers (Gallus gallus) - fresh - with skin - - neck skin - Survey - EU baseline survey																							
Isolates out of a monitoring program (yes/no)		yes																							
Number of isolates available in the laboratory		1																							
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1														
	Kanamycin	32	1	0										1											
	Streptomycin	32	1	0										1											
Amphenicols	Chloramphenicol	16	1	0										1											
	Florfenicol		1	1											1										
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																			
Penicillins	Ampicillin	4	1	0									1												
Quinolones	Nalidixic acid	16	1	0										1											
Sulfonamides	Sulfonamide	256	1	0														1							
Tetracyclines	Tetracyclin	8	1	0										1											
Trimethoprim	Trimethoprim	2	1	0							1														

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Stanleyville in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. Stanleyville		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1															
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	0											1											
Amphenicols	Chloramphenicol	16	1	0										1												
	Florfenicol		1	1										1												
Cephalosporins	Cefotaxim	0.5	1	0				1																		
	Ceftazidim	2	1	0						1																
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																				
Penicillins	Ampicillin	4	1	0								1														
Quinolones	Nalidixic acid	16	1	0										1												
Sulfonamides	Sulfonamide	256	1	0												1										
Tetracyclines	Tetracyclin	8	1	0									1													
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Stanleyville in fresh - Meat from turkey - with skin - at slaughterhouse - animal sample - neck skin - Monitoring - official sampling - quantitative data [Dilution method]

S. Stanleyville		Meat from turkey - fresh - with skin - - neck skin - Monitoring - official sampling																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		4																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	4	0							4															
	Kanamycin	32	4	0										3	1											
	Streptomycin	32	4	0											4											
Amphenicols	Chloramphenicol	16	4	0											4											
	Florfenicol		4	4										4												
Fluoroquinolones	Ciprofloxacin	0.06	4	0			3	1																		
Penicillins	Ampicillin	4	4	0								2	2													
Quinolones	Nalidixic acid	16	4	0										4												
Sulfonamides	Sulfonamide	256	4	0													4									
Tetracyclines	Tetracyclin	8	4	0									4													
Trimethoprim	Trimethoprim	2	4	0							4															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S. Stanleyville - qualitative data

S. Stanleyville		Meat from turkey - fresh - with skin - - neck skin - Monitoring - official sampling	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		4	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	4	0
	Kanamycin	4	0
	Streptomycin	4	0
Amphenicols	Chloramphenicol	4	0
	Florfenicol	4	0
Cephalosporins	Cefotaxim	4	0
	Ceftazidim	4	0
Fluoroquinolones	Ciprofloxacin	4	1
Fully sensitive	Fully sensitive	4	3
Penicillins	Ampicillin	4	0
Quinolones	Nalidixic acid	4	0
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	4	1
Sulfonamides	Sulfonamide	4	0
Tetracyclines	Tetracyclin	4	0
Trimethoprim	Trimethoprim	4	0

Table Antimicrobial susceptibility testing of S. Typhimurium in laying hens - Gallus gallus (fowl) - during production period - at farm - environmental sample - boot swabs - Clinical investigations - quantitative data [Dilution method]

S. Typhimurium		Gallus gallus (fowl) - laying hens - during production period - at farm - environmental sample - boot swabs - Clinical investigations																							
Isolates out of a monitoring program (yes/no)		no																							
Number of isolates available in the laboratory		1																							
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1														
	Kanamycin	32	1	0										1											
	Streptomycin	32	1	1														1							
Amphenicols	Chloramphenicol	16	1	1														1							
	Florfenicol		1	1												1									
Cephalosporins	Cefotaxim	0.5	1	0				1																	
	Ceftazidim	2	1	0						1															
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																			
Penicillins	Ampicillin	4	1	1													1								
Quinolones	Nalidixic acid	16	1	0										1											
Sulfonamides	Sulfonamide	256	1	1																	1				
Tetracyclines	Tetracyclin	8	1	1													1								
Trimethoprim	Trimethoprim	2	1	0							1														

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of S.Typhimurium in animals

S. Typhimurium		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)										yes			
Number of isolates available in the laboratory										1			
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin									1	0		
	Kanamycin									1	0		
	Streptomycin									1	1		
Amphenicols	Chloramphenicol									1	1		
	Florfenicol									1	0		
Cephalosporins	Cefotaxim									1	0		
	Ceftazidim									1	0		
Fluoroquinolones	Ciprofloxacin									1	0		
Number of multiresistant S. Typhimurium	with penta resistance									1	1		
Penicillins	Ampicillin									1	1		
Quinolones	Nalidixic acid									1	0		
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials									1	1		
Sulfonamides	Sulfonamide									1	1		
Tetracyclines	Tetracyclin									1	1		

Table Antimicrobial susceptibility testing of S. Typhimurium - qualitative data

S. Typhimurium		Meat from turkey - fresh - with skin - - neck skin - Monitoring - official sampling	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		2	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	2	0
	Kanamycin	2	0
	Streptomycin	2	2
Amphenicols	Chloramphenicol	2	2
	Florfenicol	2	2
Cephalosporins	Cefotaxim	2	0
	Ceftazidim	2	0
Fluoroquinolones	Ciprofloxacin	2	0
Penicillins	Ampicillin	2	2
Quinolones	Nalidixic acid	2	0
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	2	2
Sulfonamides	Sulfonamide	2	2
Tetracyclines	Tetracyclin	2	2
Trimethoprim	Trimethoprim	2	0

Table Antimicrobial susceptibility testing of S. Typhimurium in fresh - Meat from turkey - with skin - at slaughterhouse - animal sample - neck skin - Monitoring - official sampling - quantitative data [Dilution method]

S. Typhimurium		Meat from turkey - fresh - with skin - - neck skin - Monitoring - official sampling																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	2	0							1	1														
	Kanamycin	32	2	0										2												
	Streptomycin	32	2	2														2								
Amphenicols	Chloramphenicol	16	2	2														2								
	Florfenicol		2	2														2								
Fluoroquinolones	Ciprofloxacin	0.06	2	0		2																				
Penicillins	Ampicillin	4	2	2													2									
Quinolones	Nalidixic acid	16	2	0										2												
Sulfonamides	Sulfonamide	256	2	2																		2				
Tetracyclines	Tetracyclin	8	2	2													1	1								
Trimethoprim	Trimethoprim	2	2	0							2															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of Salmonella in humans, Salmonella Typhimurium

S. Typhimurium		humans	
Isolates out of a monitoring program (yes/no)		no	
Number of isolates available in the laboratory		60	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	0	0
	Kanamycin	0	0
	Streptomycin	32	53.33
Cephalosporins	3rd generation cephalosporins	1	1.67
Fluoroquinolones	Ciprofloxacin	0	0
Fully sensitive	Fully sensitive	21	35.00
Penicillins	Ampicillin	34	56.67
Quinolones	Nalidixic acid	11	18.33
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	4	6.67
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	3	5.00
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	2	3.33
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	11	18.33
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	19	31.66
Sulfonamides	Sulfonamide	35	58.33
Tetracyclines	Tetracyclin	33	55.00
Trimethoprim	Trimethoprim	4	6.67
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	4	6.67

Footnote:

Salmonella Typhimurium in human isolates, Slovenia:

we could not open the option under amphenicols, the result for chloramphenicol is:
N=16, R= 26, 67%

Table Antimicrobial susceptibility testing of S. Virginia in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. Virginia		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		1																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	1	0							1															
	Kanamycin	32	1	0										1												
	Streptomycin	32	1	0										1												
Amphenicols	Chloramphenicol	16	1	0										1												
	Florfenicol		1	1										1												
Cephalosporins	Cefotaxim	0.5	1	0				1																		
	Ceftazidim	2	1	0						1																
Fluoroquinolones	Ciprofloxacin	0.06	1	0		1																				
Penicillins	Ampicillin	4	1	0								1														
Quinolones	Nalidixic acid	16	1	0										1												
Sulfonamides	Sulfonamide	256	1	0														1								
Tetracyclines	Tetracyclin	8	1	0									1													
Trimethoprim	Trimethoprim	2	1	0							1															

Footnote:

No breakpoints for Florfenicol.

Table Antimicrobial susceptibility testing of Salmonella in animals

Salmonella spp.		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys		Gallus gallus (fowl) - laying hens		Gallus gallus (fowl) - broilers	
Isolates out of a monitoring program (yes/no)		yes		yes		yes							
Number of isolates available in the laboratory		1		14		25							
Antimicrobials:		N	n	N	n	N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	1	0	14	0	25	0						
	Kanamycin	1	0	14	0	25	0						
	Streptomycin	1	1	14	0	25	2						
Amphenicols	Chloramphenicol	1	0	14	0	25	1						
	Florfenicol	1	0	14	0	25	0						
Cephalosporins	Cefotaxim	1	0	14	0	25	0						
	Ceftazidim	1	0	14	0	25	0						
Fluoroquinolones	Ciprofloxacin	1	0	14	0	25	0						
Fully sensitive	Fully sensitive			14	14	25	20						
Penicillins	Ampicillin	1	0	14	0	25	1						
Quinolones	Nalidixic acid	1	1	14	0	25	4						
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial					25	2						
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials					25	1						
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	1	1			25	1						
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials					25	1						
Sulfonamides	Sulfonamide	1	1	14	0	25	3						
Tetracyclines	Tetracyclin	1	1	14	0	25	3						
Trimethoprim	Trimethoprim	1	0	14	0	25	0						

Table Antimicrobial susceptibility testing of Salmonella spp. in food

Salmonella spp.		Meat from bovine animals		Meat from pig		Meat from broilers (Gallus gallus)		Meat from other poultry species	
Isolates out of a monitoring program (yes/no)						yes		yes	
Number of isolates available in the laboratory						5		14	
Antimicrobials:		N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin					5	0	14	0
	Kanamycin					5	0	14	0
	Streptomycin					5	0	14	3
Amphenicols	Chloramphenicol					5	0	14	2
	Florfenicol					5	0	14	2
Cephalosporins	Cefotaxim					5	0	14	0
	Ceftazidim					5	0	14	0
Fluoroquinolones	Ciprofloxacin					5	2	14	0
Fully sensitive	Fully sensitive					5	3	14	7
Penicillins	Ampicillin					5	0	14	3
Quinolones	Nalidixic acid					5	2	14	2
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials							14	2
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials							14	1
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials					5	2	14	2
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials							14	2
Sulfonamides	Sulfonamide					5	2	14	7
Tetracyclines	Tetracyclin					5	2	14	7
Trimethoprim	Trimethoprim					5	0	14	1

Table Antimicrobial susceptibility testing of Salmonella in humans, Salmonella spp.

Salmonella spp.		humans	
Isolates out of a monitoring program (yes/no)		no	
Number of isolates available in the laboratory		1038	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	1	0.10
	Kanamycin	0	0
	Streptomycin	52	5.02
Amphenicols	Chloramphenicol	19	1.83
Cephalosporins	3rd generation cephalosporins	2	0.19
Fluoroquinolones	Ciprofloxacin	0	0
Fully sensitive	Fully sensitive	911	87.76
Penicillins	Ampicillin	67	6.45
Quinolones	Nalidixic acid	41	3.95
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	66	6.36
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	8	0.77
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	6	0.58
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	24	2.31
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	23	2.21
Sulfonamides	Sulfonamide	79	7.63
Tetracyclines	Tetracyclin	54	5.21
Trimethoprim	Trimethoprim	7	0.68
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	6	0.58

Table Antimicrobial susceptibility testing of S. enterica subsp. enterica, rough in Pigs - fattening pigs - at slaughterhouse - animal sample - faeces - Survey - EU baseline survey - quantitative data [Dilution method]

S. enterica subsp. enterica, rough		Pigs - fattening pigs - - faeces - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		2																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	2	2	0							1	1														
	Kanamycin	32	2	0										2												
	Streptomycin	32	2	0												2										
Amphenicols	Chloramphenicol	16	2	0											2											
	Florfenicol		2	2										2												
Cephalosporins	Cefotaxim	0.5	2	0					1	1																
	Ceftazidim	2	2	0								2														
Fluoroquinolones	Ciprofloxacin	0.06	2	0		1	1																			
Penicillins	Ampicillin	4	2	0									2													
Quinolones	Nalidixic acid	16	2	0										1	1											
Sulfonamides	Sulfonamide	256	2	0														2								
Tetracyclines	Tetracyclin	8	2	0									2													
Trimethoprim	Trimethoprim	2	2	0							1	1														

Footnote:

No breakpoints for Florfenicol.

Table Breakpoints for antibiotic resistance testing

Test Method Used	
Disc diffusion	◉
Agar dilution	○
Broth dilution	◉
E-test	○

Standards used for testing
NCCLS CLSI_M_31-A3 CRL_recommendations

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	**Gentamicin**				2			10	15		12
	Kanamycin				32			30	18		13
	Neomycin							30	17		12
	Streptomycin				32			10	15		11
Amphenicols	**Chloramphenicol**				16			30	18		12
	Florfenicol							30	20		16
Cephalosporins	**Cefotaxim**				0.5			30	23		14
	Cefpodoxime							10	21		17
	Ceftazidim				2			30	18		14
	Cephalothin							30	18		14
Fluoroquinolones	**Ciprofloxacin**				0.06			5	21		15
	Enrofloxacin							5	23		16
Penicillins	**Amoxicillin**							10	17		13
	Amoxicillin / Clavulanic acid							30	18		13

Table Breakpoints for antibiotic resistance testing

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Penicillins	**Ampicillin**				4			10	17		13
Quinolones	**Nalidixic acid**				16			30	19		13
Sulfonamides	**Sulfonamide**				256			300	17		12
Tetracyclines	**Tetracyclin**				8			30	15		11
Trimethoprim	**Trimethoprim**				2			5	16		10
Trimethoprim + sulfonamides	**Trimethoprim + sulfonamides**							25	16		10

Footnote:

For disc diffusion method we used mostly CLSI standard M 100-S 18. We used CLSI M 31 - A 3 for Enrofloxacin.
For broth dilution method for MIC we used recomnaded MIC values of CRL AR for EQAS 2008. For Kanamycin we used CLSI standard. For Florfenicol we did not find MIC breakpoint.

Table Breakpoints for antibiotic resistance testing

Test Method Used	
Disc diffusion	○
Agar dilution	○
Broth dilution	◉
E-test	○

Standards used for testing
NCCLS CLSI_M_31-A3 CRL_recommendations

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	**Gentamicin**				2						
	Kanamycin				32						
	Streptomycin				32						
Amphenicols	**Chloramphenicol**				16						
Fluoroquinolones	**Ciprofloxacin**				0.06						
Penicillins	**Ampicillin**				4						
Quinolones	**Nalidixic acid**				16						
Sulfonamides	**Sulfonamide**				256						
Tetracyclines	**Tetracyclin**				8						
Trimethoprim	**Trimethoprim**				2						

Footnote:

For disc diffusion method we used mostly CLSI standard M 100-S 18. We used CLSI M 31 - A 3 for Enrofloxacin. breakpoint.

Table Breakpoints for antibiotic resistance testing

Test Method Used	
Disc diffusion	◉
Agar dilution	○
Broth dilution	◉
E-test	○

Standards used for testing
NCCLS CLSI_M_31-A3 CRL_recommendations

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	**Gentamicin**				2						
	Kanamycin				32						
	Streptomycin				32						
Amphenicols	**Chloramphenicol**				16						
Fluoroquinolones	**Ciprofloxacin**				0.06						
	Enrofloxacin								23		
Penicillins	**Ampicillin**				4						
Quinolones	**Nalidixic acid**				16				19		
Sulfonamides	**Sulfonamide**				256						
Tetracyclines	**Tetracyclin**				8				15		11
Trimethoprim	**Trimethoprim**				2						
Trimethoprim + sulfonamides	**Trimethoprim + sulfonamides**							25	16		10

Footnote:

For disc diffusion method we used mostly CLSI standard M 100-S 18. We used CLSI M 31 - A 3 for Enrofloxacin.
For broth dilution method for MIC we used recomnaded MIC values of CRL AR for EQAS 2008. For Kanamycin we used CLSI standard. For Florfenicol we did not find MIC breakpoint.

Table Breakpoints for antibiotic resistance testing

Test Method Used	
Disc diffusion	○
Agar dilution	○
Broth dilution	○
E-test	○

Standards used for testing

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	**Gentamicin**							10	14	0	13
	Kanamycin							30	17	15.5	14
	Streptomycin							10	14	13	12
Amphenicols	**Chloramphenicol**							30	17	15	13
Cephalosporins	**3rd generation cephalosporins**							30	22	18.5	15
Fluoroquinolones	**Ciprofloxacin**							5	20	18	16
Penicillins	**Ampicillin**							10	16	15	14
Quinolones	**Nalidixic acid**							30	18	16	14
Sulfonamides	**Sulfonamide**							300	16	14.5	13
Tetracyclines	**Tetracyclin**							30	18	16.5	15
Trimethoprim	**Trimethoprim**							5	15	13	11
Trimethoprim + sulfonamides	**Trimethoprim + sulfonamides**							25	15	12.5	11

2.2 CAMPYLOBACTERIOSIS

2.2.1 General evaluation of the national situation

A. Thermophilic Campylobacter general evaluation

History of the disease and/or infection in the country

In 1986/87 the notification of Campylobacter enteritis started and became obligatory due to Law on Infectious diseases.

The number of notified cases decreased from 2000 to 2003, in 2006, 2008 and increased from 2003 to 2005 and in 2007. In 2008 888 cases were notified (incidence 44 /100 000 inhabitants was recorded).

National evaluation of the recent situation, the trends and sources of infection

The number of notified cases decreased from 2000 to 2003, in 2006 and 2008 and increased from 2003 to 2005 and in 2007. In 2008 888 cases were notified (incidence 44 /100 000 inhabitants was recorded which is 17% less than in 2007). (However incidence is calculated according to notifications).

(The incidence of infection in 2006 was 47,2 / 100 000 inhabitants, in 2007 53,7 / 100 000 inhabitants and 44/ 100 000 inhabitants in 2008).

No outbreaks were notified in last years.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

Ninty seven Campylobacter jejuni strains and 60 Campylobacter coli strains were isolated from fowl from slaughterhouses.
In C. jejuni only 21 (22%) were fully susceptible to Gentamicin, Streptomycin, Ciprofloxacin, Erythromycin, Nalidixic acid and Tetracyclin. The most frequent was resistance to Ciprofloxacin (70%) and Nalidxic acid (63%) followed by Tetracyclin (31%), Streptomycin (3%) and Gentamycin (2%). All strains were susceptible to Erythromycin.
In C. coli only 16 (27%) strains were fully sensitve. Again the highest was resistance to Ciprofloxacin (70%) and Nalidixic acid (66%)followed by Tetracyclin ((25%) and Streptomycin (23%). All strains were susceptible to Erythromycin and Gentamicin.
High proportion of resistant strains, particularly to Quinolons and Fluoroquinolons, indicates that poultry could be very important source of

resiastnte strains for humans.

Recent actions taken to control the zoonoses

Meeting with veterinary sector representatives. In 2008 a two year research project on comparison of Campylocter strains from human, food and animal origin started.

2.2.2 Campylobacteriosis in humans

A. Thermophilic Campylobacter in humans

Reporting system in place for the human cases

Campylobacter cases are notifiable by national law on infectious diseases (Official Gazette 69/95, revised 33/2006). Medical doctors notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

Case definition

According to definitions of EC /ECDC.

Diagnostic/analytical methods used

Serologic and biochemical identification on CCDA medium, Hyppurat test, Cephalotin and nalidixic acid resistance test.

Notification system in place

Campylobacter cases are notifiable by national Law on Infectious Diseases (official Gazette 69/95, revised 33 /2006). Medical doctors notify cases on daily basis to local institutes of public health. (Also laboratories are obliged to notify). Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Medical doctors also report outbreaks of Campylobacter infections. Notification since 1977.

History of the disease and/or infection in the country

In 1986/87 the notification of Campylobacter enteritis started and became obligatory due to Law on Infectious diseases.

The number of notified cases decreased from 2000 to 2003 in 2006, 2008 and increased from 2003 to 2005 and in 2007.

Results of the investigation

The number of notified cases decreased from 2000 to 2003 in 2006, 2008 and increased from 2003 to 2005 and in 2007.

The incidence of infection in 2006 was 47,2 / 100 000 inhabitants, in 2007 53,7 / 100 000 inhabitants and 44 / 100 000 inhabitants in 2008.

No outbreaks were notified in last years.

National evaluation of the recent situation, the trends and sources of infection

Campylobacter is the second most frequent bacterial (sporadic) gastroenteritis in Slovenia.

Relevance as zoonotic disease

Campylobacter is the second most frequent sporadic bacterial gastroenteritis in Slovenia. (The most frequent is Salmonella spp)., which is also the most frequent cause of bacterial alimentary intoxications. No campylobacter outbreaks were recorded in last years.

Table Campylobacter in humans - Species/serotype distribution

Campylobacter	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.	Unknown status
	888	**43.9**	**0**	**0**	**0**	**0**	**888**
C. coli	35	1.7					35
C. jejuni	812	40.2					812
C. lari	19	0.9					19
C. sputorum	2	0.1					2
C. upsaliensis	1	0.05					1
C. fetus	1	0.05					1
Campylobacter spp., unspecified	18	0.9					18

Table Campylobacter in humans - Age distribution

Age Distribution	C. coli			C. jejuni			C. lari			C. sputorum			C. upsaliensis		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
<1 year	1	0	1	52	34	18	1	1	0	0	0	0	1	1	0
1 to 4 years	9	7	2	138	85	53	4	2	2	0	0	0	0	0	0
5 to 14 years	7	4	3	157	102	55	1	1	0	1	1	0	0	0	0
15 to 24 years	5	2	3	129	80	49	2	1	1	0	0	0	0	0	0
25 to 44 years	3	0	3	139	75	64	4	3	1	1	0	1	0	0	0
45 to 64 years	6	4	2	112	65	47	4	1	3	0	0	0	0	0	0
65 years and older	4	1	3	85	44	41	3	1	2	0	0	0	0	0	0
Age unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total:	35	18	17	812	485	327	19	10	9	2	1	1	1	1	0

	C. fetus			Campylobacter spp., unspecified		
	All	M	F	All	M	F
<1 year	0	0	0	0	0	0
1 to 4 years	0	0	0	4	2	2
5 to 14 years	0	0	0	1	1	0
15 to 24 years	0	0	0	3	3	0
25 to 44 years	1	0	1	1	0	1
45 to 64 years	0	0	0	7	3	4
65 years and older	0	0	0	2	0	2

Table Campylobacter in humans - Seasonal distribution

Month	C. coli	C. jejuni	C. lari	C. sputorum	C. upsaliensis	C. fetus	Campylobacter spp., unspecified
	Cases	Cases	Cases	Cases	Cases	Cases	Cases
January	3	39	1	1	0	0	1
February	1	40	2	0	0	0	0
March	1	44	2	0	0	0	1
April	0	38	4	0	0	0	0
May	1	113	1	0	1	0	1
June	2	107	0	0	0	0	5
July	4	114	2	0	0	1	5
August	5	119	3	0	0	0	1
September	5	77	1	0	0	0	1
October	2	45	0	1	0	0	1
November	6	43	2	0	0	0	0
December	5	33	1	0	0	0	2
not known	0	0	0	0	0	0	0
Total:	35	812	19	2	1	1	18

2.2.3 Campylobacter in foodstuffs

A. Thermophilic Campylobacter in Broiler meat and products thereof

Monitoring system

Sampling strategy

At slaughterhouse and cutting plant

Notification system in place

Results of the investigation

National evaluation of the recent situation, the trends and sources of infection

B. C.,thermophilic in food

Monitoring system

Sampling strategy

HIRS
Monitoring at retail

Annual monitoring programme was prepared with respect to potential presence of zoonotic agent in specific food.
The majority of samples was taken in cities with 10000 inhabitants or more and number of samples taken was proportional to the population in the region.
Samples were taken at the retail level by the health inspectors.

Program:
- RTE deli dishes with heat-treated poultry meat (salads, sandwiches, precut sausages, spreads and pates, etc): 100 samples/year

Frequency of the sampling

Sampling distributed evenly throughout the year.

Methods of sampling (description of sampling techniques)

Samples were taken in one unit (n=1). A sample weighing 300-400 g was removed by sterile instrument and stored in a sterile bag or other sterile container in a case the sample was not prepacked. Samples had to be be delivered to the laboratory in the shortest time possible. Time elapsing from sampling to analysis shall by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

Positive sample is a sample from which Thermophilic Campylobacter was isolated in 25g.

Diagnostic/analytical methods used

Bacteriological test: ISO 10272:1995, one of the laboratories introduced also PCR method for detection of Campylobacter spp.

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

Registration of establishments and official control.

Measures in case of the positive findings or single cases

Informing the owner of the sample and other necessary enforcement action.

Notification system in place

Whenever zoonotic agent (Thermophilic Campylobacter) is detected in sample taken, relevant authorities must be informed.

Results of the investigation

HIRS
Monitoring at retail

All 100 samples of RTE deli dishes with heat-treated poultry meat were negative on presence of Thermophylic Campylobacter in 25 g.

C. thermophilic Campylobacter spp., unspecified in food - Meat from bovine animals and pig

Monitoring system

Sampling strategy

VARS

Subjected to sampling shall be the meat of bovine and porcine animals in establishments approved for the cutting of fresh meat and/or production of minced meat and meat preparations.

A meat sample constitutes an epidemiological unit.

Sampling is carried out continually throughout the year by official veterinarians.

Frequency of the sampling

Once a month, sampling shall be implemented in the approved establishments producing more than 1,000 tons of fresh meat or more than 1,000 tons of meat products and/or minced meat and meat preparations.

Every three months, sampling shall be implemented in the approved establishments producing less than 1,000 tons of fresh meat or less than 1,000 tons of meat products and/or minced meat and meat preparations, but more than 100 tons.

Twice a year, samples shall be taken in the approved establishments producing less than 100 tons of fresh meat or less than 100 tons of meat products and/or minced meat and meat preparations.

Type of specimen taken

Meat

Methods of sampling (description of sampling techniques)

A meat sample weighing approximately 300 g is removed by a sterile instrument and stored in a sterile bag.

Samples for analysis shall be taken from meat surface.

Samples shall be delivered to the laboratory as soon as possible, as a rule, immediately after sampling or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the

receip. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place at the temperature of 4oC(+/- 2oC) and may not be exposed to light.
S

Definition of positive finding

Positive sample is a sample, where the zoonotic agent has been isolated in 1g.

Diagnostic/analytical methods used

Bacteriological test:
ISO 10272-1: 2006(E)

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

- Registration and/or approval of establishments subjected to veterinary controls
- Identification of animal products and their traceability
- Veterinary control in establishments

Notification system in place

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.

Results of the investigation

In 2008, 281 porcine meat samples, and 265 bovine meat samples were taken.
From three (3) porcine meat samples Campylobacter coli was isolated.
From one (1) bovine meat sample Campylobacter jejuni was isolated and from one (1) bovine meat sample Campylobacter coli.

Additional information

ANTIMICROBIAL TESTING

Of 28 strains of C.jejuni from food (meat from poultry, pigs and bovine animals) all were susceptible to Gentamycin. Twenty four strains (86%) were resistant to Nalidixic acid, 23 (82%) to Enrofloxacin, 12 (43%) to Ampicillin, 4 (14%) to Tetracyclin and 1 (4%) to Eritromycin. Four strains (14%) were fully susceptible, 11 (3%) were resistant to 2 antimicrobials, 10 (36%) to 3 (11%) and 3 to 4 antimicrobials.
Of 14 strains of C. coli from food all were susceptible to Eritromycin and

Gentamycin. Eleven strains (79%) were resistant to Enrofloxacin, 10 (71%) to Nalidixic acid, 8 (57%) to Ampicylin and 2 (14%) to Tetracyclin. Two strains (14%) were fully susceptible, 2 strains were resistant to 1 antimicrobial, 2 to 2, 7 (50%) to 3 and 1 (7%) to 4 antimicrobials.

D. Thermophilic Campylobacter spp., unspecified in food - Meat from poultry, unspecified - fresh

Monitoring system

Sampling strategy

HIRS
Monitoring at retail

Annual monitoring programme was prepared with respect to potential presence of zoonotic agent in specific food.
The majority of samples was taken in cities with 10000 inhabitants or more and number of samples taken was proportional to the population in the region.
Samples were taken at the retail level by the health inspectors.

Program:
- prepacked fresh poultry meat: 384 samples/year, within 315 samples of prepacked fresh broiler meat and 69 samples of prepacked fresh turkey meat were taken

Frequency of the sampling

Sampling distributed evenly throughout the year.

Methods of sampling (description of sampling techniques)

Samples of fresh prepacked poultry meat were taken in one unit (n=1).
Samples weighing 300-400 g had to be delivered to the laboratory in the shortest time possible. The period of time elapsing from sampling to analysis shall by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

Positive sample is a sample from which Thermophilic Campylobacter was isolated in 25g.

Diagnostic/analytical methods used

Bacteriological test: ISO 10272:1995, one of the laboratories introduced also PCR method for detection of Campylobacter spp.

Preventive measures in place

GMP, GHP, HACCP

Food business operators are introducing the system of additional labelling of poultry meat which includes special warning to the customers to treat poultry meat at requested temperature before any use.

Control program/mechanisms

The control program/strategies in place

Registration of establishments and official control.

Measures in case of the positive findings or single cases

Informing the owner of the sample and other necessary enforcement action.

Notification system in place

Whenever zoonotic agent (Thermophilic Campylobacter) is detected in sample taken, relevant authorities must be informed.

Results of the investigation

HIRS
Monitoring at retail

In 2008, 315 samples of prepacked fresh broiler meat and 69 samples of prepacked fresh turkey meat were taken at retail.

Thermophilic Campylobacter was detected in 235 samples of broiler meat (74,6 %) and 18 samples of turkey meat (26,1 %).

National evaluation of the recent situation, the trends and sources of infection

High prevalence of thermophilic Campylobacter in fresh poultry meat.

Relevance of the findings in foodstuffs to human cases (as a source of human

Poultry meat could be the source for human cases.

Table Campylobacter in poultry meat

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from broilers (Gallus gallus) - fresh - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	315	235	66	166	1	0	2
Meat from turkey - fresh - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	69	18	7	10	1	0	0

Footnote:

In one of the sample of fresh broiler meat beside C. jejuni also C. coli was isolated.

Table Campylobacter in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from bovine animals - fresh - at cutting plant - Monitoring - official sampling	VARS	single	1g	265	2	1	1	0	0	0
Meat from pig - fresh - at cutting plant - Monitoring - official sampling	VARS	single	1g	281	3	3	0	0	0	0
Other processed food products and prepared dishes - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	100	0	0	0	0	0	0

2.2.4 Campylobacter in animals

A. Thermophilic Campylobacter in Gallus gallus

Monitoring system

Sampling strategy

VARS
Campylobacter monitoring in broiler flocks was conducted in the period from 1.1.2008 to 31.12.2008 in accordance with Commission Decision 2007/516/EC of 19 July 2007 concerning a financial contribution from the Community towards a survey on the prevalence and antimicrobial resistance of Campylobacter spp. in broiler flocks and on the prevalence of Campylobacter spp. and Salmonella spp. in broiler carcasses to be carried out in the Member States.

Sampling of broilers was carried out continually throughout the year in three (3) approved slaughterhouses where there were 32 563 606 broilers slaughtered in 2007, representing 99.94 % of all broilers slaughtered.

Sampled were broilers raised in the Republic of Slovenia only.

The sampling of faeces was carried out with the aim of establishing the prevalence of campylobacter in broiler flocks. Sampling of carcases (skin)was carried out with the aim of establishing the level of contamination of poultry carcases at slaughterhouses with salmonella and campylobacter.

Slaughter batch of more than 2000 animals constitutes an epidemiological unit,if this is not possible, smaller batches can be sampled. Slaughter batch means animals originating from a single flock delivered to the slaughter establishment in a single means of transport.
Sampling is carried out by the slaughterhouse official veterinarians.

Frequency of the sampling

At slaughter

In the 3 slaughterhouses where more than 2,000,000 broilers are slaughtered per year, the samples were taken each month. The number of samples was equally distributed on the basis of the annual quantity of slaughtered animals.

Type of specimen taken

At slaughter

Sampling was conducted by taking a caeca sample and a carcass from every random selected broiler slaughter batch. A caeca sample included the caeca of 10 broilers, taking 1 full and intact caecum from every broiler. Every caeca

sample and carcass sample were taken from the same slaughter batch.

Methods of sampling (description of sampling techniques)

At slaughter

In slaughtering batch of broilers sample of feaces (caeca) and carcass was taken. Slaughter batches, which were sampled, were random selected on the day selected for sampling, by random selecting from among as many numbers as there were slaughter batches envisaged for that particular day.

Sample of feaces consists of 10 animals (10 caeca).The sampling of faeces during the slaughtering process shall be equally distributed on the basis of the slaughtering batch. The sampling shall start at Â¼ and end at Â¾ of batch slaughtering. A final sample of faeces must comprise caeca taken from 10 animals.
The caecum is removed during evisceration by sterile scissors and stored in a sterile plastic bag. In the laboratory, samples are pooled into a pool sample.
In each slaughtering batch from which faeces samples were taken, after cooling but before any other handling of carcasses (e.g. cutting, packaging), a whole carcass was taken using a sterile gloves and put into a sterile plastic bag.

Samples were delivered to the laboratory as soon as possible, as a rule, immediately after sampling (on the same day) or within 24 hours of the sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the receipt. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place, at the temperature of 4 oC (+/-2 oC) and may not be exposed to light.
In the laboratory, the caecum shall be opened aseptically and the content pooled in 1 pool sample.

Case definition

At slaughter

A positive slaughter batch is a batch from which the agent has been isolated in the pooled sample of faeces.
A positive carcass sample is a sample from which an agent was isolated in 1g.

Diagnostic/analytical methods used

At slaughter

Isolation,confirmation and speciation: Faeces: Modified ISO 10272-1: 2006(E), Carcass: ISO 10272-1:2006 (E); Quantification of Campylobacter spp.: Carcass:

ISO 10272-2:2006 (E)

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

In slaughterhouses: GMP,GHP,HACCP

Control program/mechanisms

The control program/strategies in place

- Registration and/or approval of establishments subjected to veterinary controls
- Identification of animal products and their traceability
- Veterinary control in establishments

Notification system in place

Slaughterhouses involved in the survey are situated within three different VARS Regional Offices. VARS Main Office was regularly (on a monthly basis) notified of the samplings implemented and of tests conducted.

Results of the investigation

In 2008, the broiler caecum samples from 420 slaughter batches were taken at slaughter establishments. Thermophylic campylobacters were detected in 325 samples/slaughter batches (77,38%). C. jejuni was isolated from 174 samples, C. jejuni and C.coli were isolated from 30 samples, C.coli was isolated from 118 samples and C. lari from two (2) samples.

Carcass samples were analysed from 420 slaughter batches. Termophylic campilobacters were detected in 338 samples/slaughter batches (80,48%). C. jejuni was isolated from 188 samples, C. jejuni and C. coli were isolated from 35 samples and C. coli was isolated from 115 samples.

Relevance of the findings in animals to findings in foodstuffs and to human cases

A relatively high percentage of positive slaughter batches detected might lead to an increased meat contamination in case of a less strict observation of the good hygiene practice and internal control requirements in slaughterhouses. Contaminated meat may pose a threat to public health.

Additional information

We tested MIC for 36 strains of C. jejuni from faeces. All strains were susceptible to Eritromycin and Gentamycin. Twenty six strains (72%) were resistant to Nalidixic acid, 25 (69%) to Enrofoxacin and 17 strains (47%) to Ampicillin and 5

(14%) to tetracicyclin. Six strains (17%) were fully susceptible, 3 strains (8%) were resistant to 1, 12 strains (33%) to 2, 12 strains to 3 and 2 strains (6%) to 4 antimicrobials.

Of 16 strains of C. coli from faeces all were susceptible to Eritromycin and Gentamycin. Twelve strains (75%) were resistant to both nalidixic acid and Enrofloxacin, 5 strains (31%) to Ampicillin and 3 (19%) to Tetracyclin. Three strains (19%) were fully susceptible, 1 strain (6%) was resistant to 1 antimicrobial, 6 (38%) to 2, 5 (31%) to 3 and 1 (6%) to 4.

B. thermophilic Campylobacter spp., unspecified in animal - Cattle (bovine animals) - at slaughterhouse - Monitoring

Monitoring system

Sampling strategy

VARS
Sampling was evenly distributed throughout the year and conducted in all the approved bovine slaughter establishments with slaughter capacity exceeding 500 bovines annually (92 % of annual slaughter of all bovine animals).
Sampled was animals raised in the Republic of Slovenia only.
A slaughter animal constitutes an epidemiological unit.
Sampling is carried out by the slaughterhouse official veterinarians.

Frequency of the sampling

The actual number of samples to be taken in the approved slaughter establishments with slaughter capacity exceeding 500 bovines was defined in proportion to the annual slaughter capacity. Sampling was conducted so as to reflect throughout the year the state in the rearing establishments, wherefrom the animals are subjected to slaughter within every particular slaughterhouse.

Type of specimen taken

Faeces

Methods of sampling (description of sampling techniques)

A faeces sample is taken prior to slaughter, or a sample of intestinal content is taken after slaughter, upon the evisceration from the intestines, upon the aseptic opening of the intestinal wall, or a tied-up portion of the caecum containing an adequate quantity of faeces is submitted to the laboratory. The sample shall be stored in a sterile bag.
At least 100g of faeces shall be taken.

Samples must be delivered to the laboratory in the shortest possible time, as a rule, immediately after sampling (on the same day)or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after sampling, samples must be tested immediately after the receipt. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place, at the temperature of 4oC(+/-2oC) and may not be exposed to light.

Case definition

Positive animal means an animal, where a positive sample has been taken from.
Positive sample means a sample, where the zoonotic agent has been isolated from.

Diagnostic/analytical methods used

Isolation: Modified ISO 10272-1:2006(E)
Detection and speciation: PCR
Detection and speciation: ISO 10272-1:2006 (E) will be conducted on 20 % of isolates, in addition to the PCR method.

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

In slaughterhouses: GMP,GHP,HACCP

Control program/mechanisms

The control program/strategies in place

- Registration or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary control
- Identified and registrated animals
- Movements of animals accompanied by prescribed documents
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation

Notification system in place

Official notification of monitoring results:
VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation.

Results of the investigation

In 2008, 385 faeces samples were taken. Thermophylic campylobacters were detected in 30 samples (7,79%). C.jejuni was isolated from 27 samples and C.coli was isolated from 3 samples.

C. Thermophilic Campylobacter spp., unspecified in animal - Turkeys - at slaughterhouse - Monitoring

Monitoring system

Sampling strategy

VARS

Sampling of turkeys was carried out continually throughout the year in two approved slaughterhouses where turkeys are slaughter. Sampled were turkeys raised in the Republic of Slovenia only.

The sampling of faeces was carried out with the aim of establishing the prevalence of campylobacter in fattening turkeys. Sampling of carcasses (neck skin) was carried out with the aim of establishing the level of contamination of turkey carcasses in slaughterhouses with campylobacter.

Slaughter batch of more than 2000 animals constitutes an epidemiological unit, if this is not possible, smaller batches can be sampled. Slaughter batch means animals originating from a single flock delivered to the slaughter establishment in a single means of transport.

Sampling was carried out by the slaughterhouse official veterinarians.

Frequency of the sampling

Turkey sampling is conducted in two approved slaughterhouses, where turkey slaughter takes place, and the number of samples is defined according to the number of animal breeders, whose flocks are subjected to slaughter in a particular slaughterhouse.

Sampling shall be conducted throughout the year, and samples shall be distributed by the slaughterhouse veterinarians in such a way that the turkeys of every particular animal breeder are sampled at least twice a year. During the second sampling of animals of the same breeder, the animals from another accommodation facility shall possibly be sampled.

At the slaughterhouse, more than one slaughter batch may be sampled on the same slaughter day, where applicable, so as to ensure that all or most holdings are sampled within the year.

Type of specimen taken

Other: faeces (intact caecum), neck skin

Methods of sampling (description of sampling techniques)

In slaughtering batch of turkeys one (1) sample of faeces (caeca) and one (1) sample of neck skin were taken.

Sampling-faeces:

Sample of faeces consits of 10 animals (10 caeca). The sampling of faeces during the slaughtering process was equally distributed on the basis of the slaughtering batch. The sampling was started at 1/4 and end at 3/4 of batch slaughtering. A final sample of faeces must comprise caeca taken from 10 animals.

The caecum is removed during evisceration by sterile scissors and stored in a

sterile plastic bag. In the laboratory,the caecum shall be opened aseptically and the content pooled in 1 pool sample.
Sampling-neck skin:
In each slaughtering batch from which faeces samples were taken, after cooling but before any other handling of carcasses (e.g. cutting, packaging), a skin sample was taken from the neck of one carcass or, if this is not enough, also part of the skin from one side of the carcass. A sample is taken with sterile tools (sterile knife, scissors, use of sterile gloves,etc.) and put into a sterile plastic bag. The sample of skin must weigh approximately 50g.

Samples were delivered to the laboratory as soon as possible, as a rule, immediately after sampling or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the receip. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place at the temperature of 4oC(+/- 2oC) and may not be exposed to light.

Case definition

A positive slaughter batch is a batch in which the zoonotic agent has been isolated in the pooled sample of faeces.
A positive skin sample is a sample from which an zoonotic agent was isolated in 1g.

Diagnostic/analytical methods used

Faeces samples:
Isolation, confirmation and speciation: modified ISO 10272-1:2006(E)

Neck skin samples:
Isolation, confirmation and speciation: ISO 10272-1:2006(E)
Quantification: ISO/TS 10272-2:2006(E)

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

In slaughterhouses: GMP,GHP,HACCP

Control program/mechanisms

The control program/strategies in place

- Registration or approval of establishments subjected to veterinary controls
- Identification of animal products and their traceability
- Veterinary control in establishments

Notification system in place

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.

Results of the investigation

In 2008, the turkey caecum samples from 87 slaughter batches were taken at slaughter establishments. Termophylic campylobacters were detected in 59 samples/slaughter batches (67,82%). C.jejunu was isolated from 31 samples, C.jejuni and C.coli were isolated from 3 samples, C.coli was isolated from 24 samples and C.lari was isolated from 1 sample.

Neck skin sample were analysed from 88 slaughter batches. Termophylic campylobacters were detected in 41 samples/slaughter batches (46,86%). C.jejuni was isolated from 27 samples, C.jejuni and C.coli were isolated from 4 samples and C.coli was isolated from 10 samples.

Relevance of the findings in animals to findings in foodstuffs and to human cases

A relatively high percentage of positive slaughter batches detected might lead to an increased meat contamination in case of a less strict observation of the good hygiene practice and internal control requirements in slaughterhouses. Contaminated meat may pose a threat to public health.

Table Campylobacter in animals

	Source of information	Sampling unit	Units tested	Total units positive for thermophilic Campylobacter spp.	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Cattle (bovine animals) - - faeces - Monitoring - official sampling	VARS	single	385	30	3	27	0	0	0
Gallus gallus (fowl) - broilers - - neck skin - Survey - EU baseline survey [1)]	VARS	batch	420	338	150	223	0	0	0
Gallus gallus (fowl) - broilers - at slaughterhouse - animal sample - caecum - Survey - EU baseline survey [2)]	VARS	batch	420	325	148	205	3	0	0
Turkeys - - neck skin - Monitoring - official sampling [3)]	VARS	batch	88	41	14	31	0	0	0
Turkeys - at slaughterhouse - animal sample - caecum - Monitoring - official sampling [4)]	VARS	batch	87	59	27	34	1	0	0

Comments:

[1)] From 35 samples C.coli and C.jejuni were isolated
[2)] From 30 samples C.coli and C.jejuni were isolated. In 1 sample C.lari and C.jejuni were isolated
[3)] From 4 samples C.coli and C.jejuni were isolated
[4)] From 3 samples C.coli and C.jejuni were isolated

2.2.5 Antimicrobial resistance in Campylobacter isolates

A. Antimicrobial resistance of Thermophilic Campylobacter spp., unspecified in food

Sampling strategy used in monitoring

Frequency of the sampling

Isolates were obtained within annual monitoring programme.
Sampling strategy used in monitoring and frequency of the sampling were described in Monitoring system for: Thermophilic Campylobacter in food and Thermophilic Campylobacter spp., uspecified in food - Meat from poultry, unspecified - fresh.

Methods of sampling (description of sampling techniques)

See Monitoring system for: Thermophilic Campylobacter in food and Thermophilic Campylobacter spp., uspecified in food - Meat from poultry, unspecified - fresh.

Procedures for the selection of isolates for antimicrobial testing

136 isolates of Thermophilic Campylobacter derived from monitoring programme were taken for antimicrobial testing.

Methods used for collecting data

Isolates were tested in both delegated laboratoratories for analyses of official samples.
Resistance data was collected and reported to HIRS.

Laboratory methodology used for identification of the microbial isolates

Bacerological test: ISO 10272:1995, one of laboratories also introduced PCR method for detection of Campylobacter spp..

Laboratory used for detection for resistance

Antimicrobials included in monitoring

Aminoglycosides: streptomycin, gentamycin
Amphenicols: chloramphenicol
Fluoroquinolones: ciprofloxacin
Macrolides: erytromycin
Quinolones: nalidixic acid
Tetracyclines: tetracycline

Breakpoints used in testing

TREK diagnostic system, Sensititre Susceptibility plates for Campylobacter.

Control program/mechanisms

Recent actions taken to control the zoonoses

Introduced monitoring.

Notification system in place

Delegated laboratories report to HIRS at least once a year.

Results of the investigation

Out of 136 isolates 61 % of them were resistant to ciprofloxacin, 51,5 % to nalidixic acid, 21 % to tetracycline, 10 % to streptomycin, 3 % to erythromycin and 1,5 % to gentamycin.

0,7 % of isolates were resistant to > 4 antimicrobials, 3,7 % of isolates were resistant to 4 antimicrobials, 13,2 % of isolates were resistant to 3 antimicrobials, 41,9 % of isolates were resistant to 2 antimicrobials, 5,9 % of isolates were resistant to 1 antimicrobial, 34,6 % of isolates was fully susceptible.

Table Antimicrobial susceptibility testing of C. coli in Gallus gallus (fowl) - at slaughterhouse - Survey - EU baseline survey - quantitative data [Dilution method]

C. coli		Gallus gallus (fowl) - at slaughterhouse - Survey - EU baseline survey																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		60																								
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	*2*	60	0					7	11	36	5	1													
	Streptomycin	*4*	60	14							13	23	8	2	1		3	2	8							
Fluoroquinolones	Ciprofloxacin	1	60	42				2	10	3	1	2		4	22	16										
Macrolides	Erythromycin	*16*	60	0							55	3	2													
Quinolones	Nalidixic acid	*32*	60	40									1		9	7	3	9	31							
Tetracyclines	Tetracyclin	2	60	15					24	12	7	1	1		2	2	11									

Footnote:

For Campylobacter coli breakpoints are diferent from C. jejuni: Erythromycin 16, Gentamicin 2, Nalidixic acid 32, Streptomycin 4.
For Ciprofloxacin 16 means more than 8 and 0.06 means equal or less than 0.06. For Nalidixic acid 128 means more than 64. For Streptomycin 128 means more than 64 and 0.5 means equal or less than 0.5. For Gentamicin 0.12 means equal or less than 0.12. For Erythromycin 0.5 means equal or less than 0.5. For Tetracyclin 32 means more than 16 and 0.12 means equal or less than 0.12.

Table Antimicrobial susceptibility testing of C. coli - qualitative data

C. coli		Gallus gallus (fowl) - at slaughterhouse - Survey - EU baseline survey	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		60	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	60	0
	Streptomycin	60	14
Fluoroquinolones	Ciprofloxacin	60	42
Fully sensitive	Fully sensitive	60	16
Macrolides	Erythromycin	60	0
Quinolones	Nalidixic acid	60	40
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	60	3
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	60	24
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	60	10
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	60	7
Tetracyclines	Tetracyclin	60	15

Table Antimicrobial susceptibility testing of C. jejuni in Gallus gallus (fowl) - at slaughterhouse - Survey - EU baseline survey - quantitative data [Dilution method]

C. jejuni		Gallus gallus (fowl) - at slaughterhouse - Survey - EU baseline survey																							
Isolates out of a monitoring program (yes/no)		yes																							
Number of isolates available in the laboratory		97																							
Antimicrobials:		break points	N	n	<=0.008	0.015	0.03	0.06	0.12	0.25	0.5	1	2	4	8	16	32	64	128	256	512	1024	2048	>2048	lowest	highest
Aminoglycosides	Gentamicin	1	97	2					22	42	31		1		1										
	Streptomycin	2	97	3							62	25	7			2		1							
Fluoroquinolones	Ciprofloxacin	1	97	68				5	17	2	3	2	4	13	19	32									
Macrolides	Erythromycin	4	97	0							91	4	2												
Quinolones	Nalidixic acid	16	97	61							2	2	6	7	14	5	14	9	38						
Tetracyclines	Tetracyclin	2	97	30					39	22	3	2	1	3	6	5	16								

Footnote:

For Ciprofloxacin 16 means equal or more than 8. For Nalidixic acid 128 means equal or more than 64 and 0.5 equal or less than 1. For Streptomycin 0.5 means equal or less than 0.5. For Gentamicin 0.12 means equal or less than 0.12. For Erythromycin 0.5 means equal or less than 0.5. For Tetracyclin 32 means more than 16 and 0.12 means equal or less than 0.12.

Table Antimicrobial susceptibility testing of C. jejuni - qualitative data

C. jejuni		Gallus gallus (fowl) - at slaughterhouse - Survey - EU baseline survey	
Isolates out of a monitoring program (yes/no)		yes	
Number of isolates available in the laboratory		97	
Antimicrobials:		N	n
Aminoglycosides	Gentamicin	97	2
	Streptomycin	97	3
Fluoroquinolones	Ciprofloxacin	97	68
Fully sensitive	Fully sensitive	97	21
Macrolides	Erythromycin	97	0
Quinolones	Nalidixic acid	97	61
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	97	10
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials	97	49
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	97	16
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials	97	1
Tetracyclines	Tetracyclin	97	30

Table Antimicrobial susceptibility testing of Campylobacter in humans

Campylobacter spp., unspecified		**humans**	
Isolates out of a monitoring program (yes/no)		**no**	
Number of isolates available in the laboratory		**898**	
Antimicrobials:		**N**	**n**
Fluoroquinolones	**Ciprofloxacin**	898	580
Macrolides	**Erythromycin**	895	16

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used	
Disc diffusion	○
Agar dilution	○
Broth dilution	◉
E-test	○

Standards used for testing
CRL_recommendations

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	**Gentamicin**				1						
	Streptomycin				2						
Fluoroquinolones	**Ciprofloxacin**				1						
Macrolides	**Erythromycin**				4						
Quinolones	**Nalidixic acid**				16						
Tetracyclines	**Tetracyclin**				2						

Footnote:

For Campylobacter coli breakpoints are diferent: Erythromycin 16, Gentamicin 2, Nalidixic acid 32, Streptomycin 4.

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used	
Disc diffusion	◉
Agar dilution	○
Broth dilution	○
E-test	◉

Standards used for testing
NCCLS

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	**Gentamicin**							15	18	16.5	16
Fluoroquinolones	**Ciprofloxacin**	NCCLS	1	2	4	0.002	32	5	25	23	22
Macrolides	**Erythromycin**							15	22	19	17
Penicillins	**Ampicillin**							10	19	16	14
Quinolones	**Nalidixic acid**							30	20	17	15
Tetracyclines	**Tetracyclin**							30	19	17.5	17

Footnote:

Campylobacter in human, Slovenia:
we also add antimicrobial substance; AMOXICLAV/CLAVULANIC ACID (Disk content microg=15; BreakpointZonediameter-Susceptible=21; Intermediate=17; Resistant=14)

2.3 LISTERIOSIS

2.3.1 General evaluation of the national situation

A. Listeriosis general evaluation

History of the disease and/or infection in the country

In last 5 years 0 to 7 human cases annually were notified.
In 2005 three human cases were notified, in 2006 seven, in 2007 four, in 2008 three.

National evaluation of the recent situation, the trends and sources of infection

There are probably more cases than notified, because only most severe cases seek medical help and are therefore notified. (Most notified cases have meningitis or sepsis).

Recent actions taken to control the zoonoses

Epidemiological surveillance of human cases, microbiological food control, monitoring.

2.3.2 Listeriosis in humans

A. Listeriosis in humans

Reporting system in place for the human cases

Listeriosis cases are notifiable by national Law on infectious diseases (Official Gazette 69/95, revised 33/2006). Medical doctors notify cases on daily basis to local institutes of public health. (Laboratories are obliged to notify as well). Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

Case definition

According to definition of the ECDC.

Diagnostic/analytical methods used

Isolation from body fluids on differential and selective media, Gram staining;
biochemical tests;
serology;
PCR.

Notification system in place

Listeriosis cases are notifiable by national Law on infectious diseases. Medical doctors notify cases on daily basis to local institutes of public health. (Laboratories are obliged to notify as well). Local institutes of public health notify disease to Institute of Public Health of R. Slovenia.
Notification since 1977.

History of the disease and/or infection in the country

In last 5 years 0 to 7 human cases annually were notified.
In 2005 three human cases were notified, in 2006 seven in 2007 4 and in 2008 3 cases were notified(incidence below 1 / 100 000 inhabitants).

Results of the investigation

According to notifications human listeriosis is a rare zoonosis in Slovenia.

National evaluation of the recent situation, the trends and sources of infection

Real burden of human disease is probably greater than estimation from passive notification. source of infection mostly remains unclear.

Relevance as zoonotic disease

Listeria is a common bacteria, but human listeriosis is rarely reported. Enhanced surveillance of human cases in comparison with positive food samples would give better insight in epidemiological situation and source of infection.

Table Listeria in humans - Species/serotype distribution

Listeria	Cases	Cases Inc.
	3	**0.2**
L. monocytogenes	3	0.2
Deaths	2	

Table Listeria in humans - Age distribution

Age Distribution	L. monocytogenes		
	All	M	F
<1 year	1	0	1
1 to 4 years	0	0	0
5 to 14 years	0	0	0
15 to 24 years	0	0	0
25 to 44 years	0	0	0
45 to 64 years	1	1	0
65 years and older	1	0	1
Age unknown	0	0	0
Total:	3	1	2

2.3.3 Listeria in foodstuffs

A. L. monocytogenes in food

Monitoring system

Sampling strategy

VARS
Monitoring at processing
Sampling of dairy products for L.monocytogenes shall be conducted in the establishments, which have been registered and/or approved for the production of milk and dairy products.
In cases where business operators produce dairy products using the different types of milk (raw, thermally treated, pasteurised), the dairy products obtained from the raw milk and thermally treated milk shall have precedence in sampling.

HIRS
Monitoring at retail
Annual monitoring programme was prepared with respect to the legislative criteria and results of programme/controls carried out in the previous year. The majority of samples were taken in cities with 10000 inhabitants or more and number of samples taken was proportional to the population in the region. Samples were taken at the retail level where sampling could give an overview over the situation.
Sampling was carried out by the health inspectors.

Programme:
- RTE deli dishes with long shelf life (sausages, liver pates, minced lards, greaves, brawns, different spreads, etc.): 40 samples/year;
- other RTE deli dishes (sandwiches, salads, precut sausages, precut fruits and vegetables, etc.): 600 samples/year;
- confectionary products: 300 samples/year;
- prepacked cheeses: 100 samples/year
- RTE foods for special medical purposes: 5 samples/year

Frequency of the sampling

At the production plant

Sampling was distributed evenly throughout the months: April - November. The number of samples of dairy products to be taken at establishments had been defined in advance and for every particular VARS Regional Office separately.

At retail

Sampling distributed evenly throughout the year.

Type of specimen taken

At the production plant

VARS
Dairy products

Methods of sampling (description of sampling techniques)

At the production plant

VARS
A single sample of a dairy product shall be composed of five units (n=5), and every unit shall weigh at least 200 g.
Samples were delivered to the laboratory in the shortest time possible, as a rule, immediately after sampling (in 24 hours after sampling at the latest). In time between sampling and delivery to the laboratory, samples shall be kept in cool place.

At retail

HIRS
A single sample of RTE deli dishes with long shelf life, prepacked cheeses and RTE foods for special medical purposes was composed of five units (n=5) and every unit weighed at least 300 g. Samples of other RTE deli dishes and confectionary products were taken in one unit (n=1).
A sample weighing 300-400g was removed by a sterile instrument and stored in a sterile bag or other sterile container in a case the sample was not prepacked. Samples had to be delivered to the laboratory in the shortest time possible. The period of time elapsing from sampling to analysis should by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

At the production plant

VARS
A sample in which Listeria monocytogenes was isolated in 25g.

At retail

A sample in which Listeria monocytogenes was isolated in 25g.

Diagnostic/analytical methods used

At the production plant

Bacteriological method: ISO 11290-1:1996, 1998

At retail

Bacteriological method: ISO 11290-1, 2:1996, 1998/AM1:2004

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

VARS
- Registration and/or approval of establishments subjected to veterinary controls
- Identification of animal products and their traceability
- Veterinary controls in establishments

HIRS
Registration of establishments and official control.

Suggestions to the Community for the actions to be taken

HIRS
Raw meat was identified as a source of Listeria monocytogenes. Since it is widely used for preparation of RTE deli dishes made without any heat treatment, it might present risk to human health.

Measures in case of the positive findings

HIRS
Informing the owner of the sample and necessary enforcement action.

Notification system in place

Whenever zoonotic agent - Listeria monocytogenes was detected in samples taken, relevant authorities was informed.

Results of the investigation

VARS
Monitoring at the establishments
In 2008, 83 samples of dairy products were taken. Listeria monocytogenes was detected in one(1) sample of cream from raw cow milk.

HIRS
Monitoring at retail
In 2008, 40 samples of RTE deli dishes with long shelf life, 600 samples of other RTE deli dishes, 300 samples of confectionary products, 100 samples of prepacked cheeses and 5 samples of dietery foods for special medical purposes were taken at restaurant, retail and catering.
1 sample of RTE deli dish - precut sausage made of broiler meat exceeded the criteria set in the legislation - >100 cfu/g.
Listeria monocytogenes (in 25 g) was also found in other 24 samples but in concentration <100 cfu/g:
- in 5 samples of confectionary products,
- in 2 samples of RTE deli dishes with long shelf life (from pig meat),
- in 17 samples of other RTE deli dishes
Out of 17 positive samples of other RTE deli dishes the presence of Listeria monocytogenes was found in:
- 1 sample of precut fresh fruits and vegetables (n=47),
- 3 samples of meat preparation from bovine meat intended to be eaten raw (n=7),

- 4 samples of cooked meat products (from pig meat) (n=57),
- 2 samples of other food of non-animal origin (n=113),
- 3 samples of sandwiches (n=129),
- 6 samples of other procesed food products and prepared dishes (4 samples of salads with heat treated meat ingredient and 2 samples of spreads) (n=183).

Listeria monocytogenes was not found in prepacked cheeses and dietery foods for special medical purposes.

Out of all 1045 samples taken, 2,4 % were positive on presence of Listeria monocytogenes in 25 g.

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Cheeses made from cows' milk - at processing plant - Monitoring - official sampling	VARS	single	25g	47	0	47	0	0	0	0
Cheeses made from cows' milk - at retail - Monitoring - official sampling (n=5)	HIRS	single	25 g	96	0	96	0	96	0	0
Cheeses made from goats' milk - at processing plant - Monitoring - official sampling	VARS	single	25g	12	0	12	0	0	0	0
Cheeses made from goats' milk - at retail - Monitoring - official sampling (n=5)	HIRS	single	25 g	2	0	2	0	2	0	0
Cheeses made from sheep's milk - at processing plant - Monitoring - official sampling	VARS	single	25g	14	0	14	0	0	0	0
Cheeses made from sheep's milk - at retail - Monitoring - official sampling (n=5)	HIRS	single	25 g	2	0	2	0	2	0	0
Dairy products (excluding cheeses) - at processing plant - Monitoring - official sampling	VARS	single	25g	10	1	10	1	0	0	0

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Confectionery products and pastes - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	300	5	300	5	300	5	0
Foodstuffs intended for special nutritional uses - dietary foods for special medical purposes - at retail - Monitoring - official sampling (n=5)	HIRS	single	25 g	5	0	5	0	5	0	0
Fruits and vegetables - precut - at retail - Monitoring - official sampling (n=1) [1)]	HIRS	single	25 g	47	1	47	1	47	1	0
Meat from bovine animals - meat preparation - intended to be eaten raw - at retail - Monitoring - official sampling (n=1) [2)]	HIRS	single	25 g	7	3	7	3	7	3	0
Meat from bovine animals - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling (n=1) [3)]	HIRS	single	25 g	1	0	1	0	1	0	0
Meat from bovine animals and pig - meat products - at retail - Monitoring - official sampling [4)]	HIRS	single	25 g	46	0	46	0	46	0	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling [5)]	HIRS	single	25 g	49	1	49	1	49	0	1
Meat from pig - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling [6)]	HIRS	single	25 g	57	4	57	4	57	4	0
Meat from turkey - meat products - cooked, ready-to-eat - at retail - Monitoring - official sampling [7)]	HIRS	single	25 g	8	0	8	0	8	0	0
Other food of non-animal origin - at retail - Monitoring - official sampling [8)]	HIRS	single	25 g	113	2	113	2	113	2	0
Other processed food products and prepared dishes - sandwiches - at retail - Monitoring - official sampling (n=1) [9)]	HIRS	single	25 g	129	3	129	3	129	3	0

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for L.monocytogenes	Units tested with detection method	Listeria monocytogenes presence in x g	Units tested with enumeration method	> detection limit but <= 100 cfu/g	L. monocytogenes > 100 cfu/g
Other processed food products and prepared dishes - unspecified - at retail - Monitoring - official sampling (n=1) [10)]	HIRS	single	25 g	183	6	183	6	183	6	0

Comments:

[1)] from the sample group other RTE deli dishes
[2)] from the sample group other RTE deli dishes
[3)] from the sample group other RTE deli dishes
[4)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)
[5)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)
[6)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)
[7)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)
[8)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)
[9)] from the sample group other RTE deli dishes
[10)] from the sample group other RTE deli dishes

Footnote:

6 positve samples from Other processed food products and prepared dishes, uspecified include: 4 RTE salads with heat treated meat ingredient and 2 samples of spreads.

2.3.4 Listeria in animals

A. L. monocytogenes in animal

Monitoring system

Sampling strategy

Disease is monitored on the basis of clinical signs and/or detection of listeriosis in other animals at the same holding in accordance with national legislation.
Active monitoring of listeriosis in animals is not performing.

Frequency of the sampling

Samples are taken in case of clinical signs.

Type of specimen taken

Other: Blood, milk, faetus (abortion)

Methods of sampling (description of sampling techniques)

Immediately upon suspicion of disease on the basis of clinical signs and/or detection of listeriosis in other animals in the same holding, the animal owner must immediately inform the authorised veterinary organisation which must submit the animal samples for investigation.

Case definition

The disease shall be considered officially confirmed on the basis of the clinical signs and positive bacteriological test results; in the opposite case it shall be considered that the disease has been ruled out.

Diagnostic/analytical methods used

Bacteriological method

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases. In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

Control program/mechanisms

The control program/strategies in place

National control program is carried out in accordance with:
national Rules on contagious animal disease
- registration or approval of holdings, establishment, transporters, collection centres and dealers, who are subject to veterinary controls
- identification and registration of animals.

- regular official veterinary inspections at the holdings.
- movement of animals accompanied by the prescribed documents.
- veterinary referral form for sick animals and animals from stables with unverified or suspected epizootiological conditions.
- obligated notification between veterinary and public health services in case of zoonoses occurrence in animals or humans.

Measures in case of the positive findings or single cases

Measures may be introduced after the public health service has notified the veterinary service of an onset of clinical signs of disease in humans. Depending on the nature of disease, or where necessary, VARS and public health service shall conduct the epidemiological and/or epizootiological investigations. Based on the investigation results, VARS may institute the required veterinary measures in animal husbandry, or other necessary measures.
- providing for potable water that is fit for consumption, water for watering, and feed,
- providing for and maintaining the required conditions of hygiene in animal accommodation facilities, and in other premises and installations intended for keeping animals,
- providing for hygiene at parturition and during milking,
- providing for veterinary order in public places intended for animal assembly, in the means of transport intended for the transport of animals, products, raw materials, foodstuffs, waste, and animal feed, in pens, on pastures and in facilities intended for animal assembly, animal slaughter, and for collecting, treating, processing and storing raw materials, products, foodstuffs, waste, and animal feed,
- providing for food safety and for compliance with the veterinary conditions for their production and circulation,
- preventing the introduction of disease agents into animal accommodation facilities,
- implementing veterinary measures in animal accommodation facilities,
- handling dead animal carcasses and other waste, waste waters, animal faeces, and urine in compliance with the required methods,
- providing for preventive disinfection, disinsectisation and deratisation in facilities, on public surfaces and in the means of transport,
- other recovery measures

Notification system in place

At the presence of a contagious disease, or signs giving rise to suspicion that an animal has fallen sick or died of a contagious disease, the animal keeper shall immediately notify thereof the veterinary organisation. A veterinary organisation shall notify of disease the relevant VARS Regional Office in cases only, where the diagnostic test results have confirmed the presence of disease. A report on

the occurrence of such diseases shall be drawn up on a monthly basis, by day 10 in the month for the previous month, in the electronic form, via VARS Central Information System (CIS VURS-EPI). At a suspected or confirmed presence of disease, the competent public health services shall be notified as well.

Results of the investigation

CATTLE
Listeria was identified in six(6) bovine animals on four(4) holdings.
SHEEP/GOATS
Listeria was identified in 14 small ruminants.

Table Listeria in animals

	Source of information	Sampling unit	Units tested	Total units positive for Listeria spp.	L. monocytogenes	Listeria spp., unspecified
Cattle (bovine animals)	VARS	animal		6	6	0
Sheep and goats - at farm - Surveillance	VARS	animal		14	14	0

Comments:

[1)] at farm-sueveilance

2.4 E. COLI INFECTIONS

2.4.1 General evaluation of the national situation

A. Verotoxigenic Escherichia coli infections general evaluation

History of the disease and/or infection in the country

From 1999 to 2008 from 117 to 331 all E.coli infections were notified yearly. most notified E.coli cases are pathogenic.

Just minor part of all notifications were confirmed as VTEC infections where VTEC toxins and or genes were positive(from zero to less than 10 cases yearly).

HUS is notified even more rarely, because notification is not obligatory.

The real burden of VTEC infections is probably greater.

National evaluation of the recent situation, the trends and sources of infection

Human cases (all E.coli cases) are notifiable by national Law on Infectious Diseases (official Gazette number 69/95, revised 33/2006).
Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Most cases are diagnosed and notified as E. coli infection. They are serotyped mostly on O basis, without identification of toxins and or genes.VTEC toxins and genes are identified just in two laboratories. (Laboratory of Institute of Public Health of Slovenia and in a laboratory of Medical Faculty in Ljubljana). In that way just part of VTEC infections are identified, probably those with more severe clinical picture who are admitted to hospitals.

The real burden of infection is not known.
According to notifications of real VTEC cases(laboratory confirmed - VTEC toxin positive and /or vtec genes positive), infection is currently not a problem; no outbreaks of VTEC were recorded in last years. (One EPEC O127 outbreak in a restaurant and one E.coli hydric outbreak were recorded in 2007).

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

In 2008, 265 bovine meat samples were taken. VTEC O:157 was detected in one sample (0,38%).
and in less than 2% of samples in slaughter house. Regarding bovine meat the situation is considered favourable, Most human cases are young, vulnerable children.

Recent actions taken to control the zoonoses

surveillance of VTEC should be enhanced - all VTEC "suspected samples" should be sent to laboratory to confirm toxins/genes at least for some population groups.

Suggestions to the Community for the actions to be taken

More widespread information for VTEC (prevention of) infection.

2.4.2 E. coli infections in humans

A. Verotoxigenic Escherichia coli infections in humans

Reporting system in place for the human cases

Human cases are notifiable by national Law on Infectious Diseases (official Gazette number 69/95).
Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia.
HUS notification is not obligatory.

Case definition

Case definition of E.coli infections according to ECDC definitions.
Real, laboratory confirmed VTEC cases are cases with E.coli infection which produce V1 and or V2 toxins and have also gen(es) for toxin(s) and other genes.

Diagnostic/analytical methods used

Isolation, biochemial tests, O serotypisation;
identification of VT1 and VT2 toxins in Laboratory of Institute of Public Health of Slovenia (RPLA test) and Microbiological institute of Medical Faculty in Ljubljana.
In the latter laboratory also identification of genes is done.

Notification system in place

Human cases are notifiable by national Law on Infectious Diseases. Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia.

History of the disease and/or infection in the country

Real burden of disease is not known.

Notification data for all E.coli serotypes: from 1990 to 1999 the average yearly number of notifications was about 150 or 7,5 /100 000 inhabitants.

In last five years, from year 2003 to 2007 the average yearly number of all E.coli notifications was 135 or incidence was 6,7 / 100 000 inhabitants.

According to notifications of real VTEC cases(laboratory confirmed - VTEC toxin positive and /or VTEC genes positive), VTEC infections are small part of all E.coli infections.

Results of the investigation

According to notifications of real VTEC cases(laboratory confirmed - VTEC toxin positive and /or VTEC genes positive), VTEC infections are small part of all E.coli infections (less than 10%). According to notifications VTEC infection is not a problem. No VTEC outbreaks were recorded in recent years.

Relevance as zoonotic disease

The real burden of infection is not known.

According to notifications of real VTEC (VT1 and VT2 toxins and genes confirmed), the number of notifications is low and infection is not a problem yet. HUS is very rarely reported as well.
The source of infections often remains unclear; possible source is meat.
No outbreaks were recorded in last years (but one outbreak of EPEC O127 in a restaurant and one hydric outbreak of E.coli).

Table Escherichia coli, pathogenic in humans - Age distribution

Escherichia coli, pathogenic	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
	101	5	0	0	0	0
Verotoxigenic E. coli (VTEC)	7	0.3				
Enteropathogenic E. coli (EPEC)	38	1.9				
Enterotoxigenic E. coli (ETEC)	16	0.8				
E.coli, pathogenic, unspecified	40	2.0				
- laboratory confirmed	113	5.6				

Footnote:

7 vTEC were laboratory confirmed (genes and or VT1,2 toxins); there were 12 cases of E.coli infection, not classified.

Table Escherichia coli, pathogenic in humans - Species/serotype distribution

Age Distribution	Verotoxigenic E. coli (VTEC)			Enteropathogenic E. coli (EPEC)			Enterotoxigenic E. coli (ETEC)			E.coli, pathogenic, unspecified			VTEC O157:H7		
	All	M	F	All	M	F	All	M	F	All	M	F	All	M	F
<1 year	0	0	0	4	1	3	0	0	0	4	2	2	0	0	0
1 to 4 years	4	2	2	10	5	5	0	0	0	11	9	2	0	0	0
5 to 14 years	1	1	0	4	1	3	3	2	1	5	3	2	0	0	0
15 to 24 years	0	0	0	2	2	0	1	1	0	4	2	2	0	0	0
25 to 44 years	0	0	0	4	1	3	3	2	1	7	2	5	0	0	0
45 to 64 years	2	1	1	4	1	3	5	2	3	4	3	1	1	0	1
65 years and older	0	0	0	10	3	7	4	4	0	5	1	4	0	0	0
Age unknown	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total:	7	4	3	38	14	24	16	11	5	40	22	18	1	0	1

	VTEC non-O157		
	All	M	F
<1 year	4	2	2
1 to 4 years	0	0	0
5 to 14 years	1	1	0
15 to 24 years	0	0	0
25 to 44 years	0	0	0
45 to 64 years	1	1	0
65 years and older	0	0	0

2.4.3 Escherichia coli, pathogenic in foodstuffs

A. Verotoxigenic E. coli (VTEC) in food - Meat from bovine animals

Monitoring system

Sampling strategy

VARS

Subjected to sampling shall be the meat of bovine and porcine animals in establishments approved for the cutting of fresh meat and/or production of minced meat and meat preparations.

A meat sample constitutes an epidemiological unit.

Sampling is carried out continually throughout the year by official veterinarians.

Frequency of the sampling

Once a month, sampling shall be implemented in the approved establishments producing more than 1,000 tons of fresh meat or more than 1,000 tons of meat products and/or minced meat and meat preparations.

Every three months, sampling shall be implemented in the approved establishments producing less than 1,000 tons of fresh meat or less than 1,000 tons of meat products and/or minced meat and meat preparations, but more than 100 tons.

Twice a year, samples shall be taken in the approved establishments producing less than 100 tons of fresh meat or less than 100 tons of meat products and/or minced meat and meat preparations.

Type of specimen taken

Meat

Methods of sampling (description of sampling techniques)

A meat sample weighing 300g is removed by a sterile instrument and stored in a sterile bag.

Samples shall be delivered to the laboratory as soon as possible, as a rule, immediately after sampling or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after taking, they must be tested immediately after the

receip. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place at the temperature of 4oC(+/- 2oC).

Definition of positive finding

Positive sample means a sample, where the zoonotic agent has been isolated from. Isolation of zoonotic agent in 25g.

Diagnostic/analytical methods used

Bacteriological method:
ISO 16654: 2001
Molecular method:
PCR Multiplex

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

- Registration or approval of establishments subjected to veterinary control
- Identification of animal products and their traceability
- Veterinary control in establishments

Notification system in place

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.

Results of the investigation

In 2008, 265 bovine meat samples were taken. VTEC O:157 was detected in one sample (0,38%).

National evaluation of the recent situation, the trends and sources of infection

As compared to year 2007 (0 % of positives), the number of positive cases in 2008 is slightly higher (0,38% of positives). Nevertheless we find the situation concerning VTEC in meat from bovine animals favourable.

Table VT E. coli in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC)- VTEC O157	Verotoxigenic E. coli (VTEC)- VTEC non-O157	Verotoxigenic E. coli (VTEC)- VTEC, unspecified
Meat from bovine animals - fresh - at cutting plant - Monitoring - official sampling	VARS	single	25g	265	1	1	0	0

2.4.4 Escherichia coli, pathogenic in animals

A. Verotoxigenic Escherichia coli in cattle (bovine animals)

Monitoring system

Sampling strategy

VARS
Sampling is carried out continually throughout the year at approved bovine slaughter establishments where more than 500 bovine animals per year are slaughtered (92% of yearly slaughtered bovine animals).
Sampled are animals raised in the Republic of Slovenia only.
A slaughter animal constitutes an epidemiological unit.
Sampling is carried out by the slaughterhouse official veterinarians.

Frequency of the sampling

Animals at slaughter (herd based approach)

At slaughter establishments, 1 animal - 1 sample. Samples are taken every 1 or 3 months- depends on capacity of the slaughter.

Type of specimen taken

Animals at slaughter (herd based approach)

Faeces

Methods of sampling (description of sampling techniques)

Animals at slaughter (herd based approach)

A faeces sample is taken prior to slaughter, or a sample of intestinal content is taken after slaughter, upon the evisceration from the intestines, upon the aseptic opening of the intestinal wall, or a tied-up portion of the caecum containing an adequate quantity of faeces is submitted to the laboratory. The sample shall be stored in a sterile bag.
At least 100g of faeces shall be taken.

Samples must be delivered to the laboratory in the shortest possible time, as a rule, immediately after sampling (on the same day)or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after sampling, samples must be tested immediately after the receipt. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place, at the temperature of 4oC(+/-2oC) and may not be exposed to light.

Case definition

Animals at slaughter (herd based approach)

Positive animal means an animal, where a positive sample has been taken from. Positive sample means a 10g faeces sample, where the zoonotic agent has been isolated from.

Diagnostic/analytical methods used

Animals at slaughter (herd based approach)

Other:Bacteriological method: ISO 16654:2001, Molecular method: PCR Multiplex

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production, come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

Control program/mechanisms

The control program/strategies in place

- Registration and/or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary checks
- Identified and registered animals
- Regular official veterinary checks on holdings
- Movements of animals accompanied by prescribed documents
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation

Notification system in place

VARS Regional Offices must report to VARS Main Office on a monthly basis regarding the monitoring programme implementation and control results.

Results of the investigation

In 2008, VTEC O:157 was detected in 7 samples (1,82 %) of 385 samples taken.

National evaluation of the recent situation, the trends and sources of infection

As compared to 2007 (6,06 % of positives), the number of positive cases in 2008 decreased by more than three times (1,82 % positives), and thus we find the situation concerning VTEC in bovine animals favourable.

Table VT E. coli in animals

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC)- VTEC O157	Verotoxigenic E. coli (VTEC)- VTEC non-O157	Verotoxigenic E. coli (VTEC)- VTEC, unspecified
Cattle (bovine animals) - - faeces - Monitoring - official sampling	VARS	animal	10g	385	7	7	0	0

2.5 TUBERCULOSIS, MYCOBACTERIAL DISEASES

2.5.1 General evaluation of the national situation

A. Tuberculosis general evaluation

History of the disease and/or infection in the country

Registry of TB cases of Slovenia was founded in 1954 and has been functioning since then in Hospital in Golnik.
It is updated regularly. In 1995 it was updated -reorganized according to demands of WHO and Euro TB.
The incidence of all TB cases in recent years is lower than 15 / 100 000 inhabitants.

National evaluation of the recent situation, the trends and sources of infection

Since year 2000 the annual incidence of TBC in Slovenia was lower than 20/100 000 inhabitants. In 2008 the incidence was 10,6 / 100 000 inhabitants.
Most of teh cases are autochtonous, some are imported.

Table 1: Imported cases (men) from different countries 2008:

Most imported cases (men) were from Bosnia (30), Kosovo (7), some also from Macedonia (2), India (1), Croatia (1), Germany (1).

	<1	1-4	5-14	15-24	25-44	45-64	65+
Germany	0	1	0	0	0	0	0
Bosnia	0	0	0	2	18	11	1
Kosovo	0	0	0	1	4	2	0
India	0	0	0	0	1	0	0
Croatia	0	0	0	0	0	1	0
Macedonia	0	0	0	0	0	2	0
Serbia	0	0	0	0	0	1	0

Table 2: Imported cases (women) from different countries 2008

	<1	1-4	5-14	15-24	25-44	45-64	65+
Bosnia	0	0	0	0	2	2	4
Serbia	0	0	0	0	1	0	2
Kosovo	0	0	0	1	0	0	0

Most imported cases (women) were from Bosnia (8), some from Serbia (3), Kosovo (1).

Tuberculosis is currently not an epidemiological problem.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

Tbc is not relevant as zoonotic disease.

2.5.2 Tuberculosis, mycobacterial diseases in humans

A. Tuberculosis due to Mycobacterium bovis in humans

Reporting system in place for the human cases

Registry of TB cases of Slovenia was founded in 1954 and has been functioning since then in Hospital in Golnik.
It is updated regularly. In 1995 it was updated -reorganized according to demands of WHO and Euro TB.
Registry on TB encounters:
personnal data of TB cases,
clinical data of TB cases, data on diagnostic procedures, therapy,
data on antimicrobial resistence;
data on diagnostics of TB contacts, HIV patients..;
data on BCG vaccination from 2005 on.
Data on suspected (laboratory unconfirmed) TBC cases are also collated and sent to tbc registry. Further diagnostic procedures are done to confirm new cases. Epidemiological investigations of contacts of suspected cases are also performed.
Data on TB cases in Slovenia are sent to WHO and Euro TB.

Case definition

Tbc case is defined as a person with laboratory confirmed TBC in lungs or other organs.

Diagnostic/analytical methods used

Mycobacteria are mostly isolated from: (induced) sputum, bronchoscop.,gastric lavage, gastric juice.
Bacteria are rarely confirmed in exudates, liquor, biopsy specimen, blood, bone marrow..

Ziehl-Neelson and Auramin dyes (autofluorescent microscope) are used.
Lowenstein-Jensen solid medium and MGIT Bactec liquid medium are used.
Antimicrobial activity is tested on same media.
Identification of types is done with combination of microbiological, molecular and biochemical methods.

Notification system in place

Reporting system: medical doctors and laboratories are obliged by law to notify the confirmed TB cases within one week to the TB registry in Hospital Golnik.

History of the disease and/or infection in the country

Registry of TB cases of Slovenia was founded in 1954 and has been functioning since then in Hospital in Golnik.
It is updated regularly. In 1995 it was updated -reorganized according to demands of WHO and Euro TB.
The incidence of all TB cases in recent years is lower than 15 / 100 000 inhabitants.

Results of the investigation

In 2006 one case of human infection with Mycobacterium bovis was confirmed, in 2007 two cases.

In 2008 no case of human infection with Mycobacterium bovis was confirmed.

National evaluation of the recent situation, the trends and sources of infection

Tuberculosis is currently not an epidemiological problem.

Relevance as zoonotic disease

Tbc is not relevant as zoonotic disease.

Table Mycobacterium in humans - Species/serotype distribution

Mycobacterium	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
	212	**10.4**	**155**	**7.8**	**57**	**2.9**
M. tuberculosis	212	10.4	155	7.8	57	2.9
Reactivation of previous cases	22	1.1	14	0.7	8	0.4

Table Mycobacterium in humans - Age distribution

Age Distribution	M. tuberculosis		
	All	M	F
<1 year	0	0	0
1 to 4 years	3	1	2
5 to 14 years	0	0	0
15 to 24 years	11	6	5
25 to 44 years	53	37	16
45 to 64 years	73	61	12
65 years and older	72	29	43
Total:	212	134	78

2.5.3 Mycobacterium in animals

A. Mycobacterium bovis in bovine animals

Status as officially free of bovine tuberculosis during the reporting year

The entire country free

The requirements for the recognition of status of the entire country was fulfilled at the end of 2008.

Monitoring system

Sampling strategy

Since 2005 the interval between two regular investigations have been extended to two years.
In 2008, TB testing was performed on all bovine animals older than 6 weeks.
Bacteriological examination:
- lungs of cattle older than 30 month in all cases in which the official veterinarian found the signs of pneumonia in a post-mortem examination

Frequency of the sampling

Intradermal tuberculin test:
- interval between routine tuberculin test: every two years

Bacteriological examination:
- lungs of cattle older than 30 month in all cases in which the official veterinarian found the signs of pneumonia in a post-mortem examination

Methods of sampling (description of sampling techniques)

Intradermal TB testing accordance with Council Directive 64/432/EEC and in accordance with the National Rules on contagious animal diseases;

Samples of lungs in animals older then 30 month with the signs of pneumonia were taken by official veterinarian in slaughterhouses and sent to bacteriological examination to the National veterinary institute in Ljubljana.

Case definition

TBC is suspected if:
- weight loss or swelling of lymph nodes are found in animals that cough a lot;
- granulomatic or other changes that lead to the suspicion of TBC are found in the organs of slaughtered or dead animals;
- an inconclusive or positive reaction to intradermal tuberculin test was identified; the intradermal tuberculin test and the assessment of the results are carried out in accordance with the Rules on contagious animal diseases;
- animals came into contact with people or animals suspected to have been

infected or are infected with TBC;
- animals are kept at a holding where TBC was found.

TBC is confirmed if M.bovis is isolated.
Status of an officially tuberculosis-free herd shall be withdrawn, when tuberculosis has been confirmed through the isolation of the agent during laboratory investigation.

Diagnostic/analytical methods used

INTRADERMAL TB TESTING
Intradermal TB testing is carried out in accorance to

BACTERIOLOGICAL EXAMINATION
Mycobacterium bovis shall be confirmed by:
1.direct microscopic examination of smears of suspect tissues (Ziehl-Neelsen staining, auramine-rodamine staining),
2.investigation on cell culture:
a.homogenisation, decontamination and concentration of material under examination, cultivation, and selective cell cultures (Lowenstein/Jensen, Stonebrink, Middlebrook 7H10 or 11, MGIT or Middlebrook 7H12),
b.cell cultures must be incubated for a minimum of 8 weeks (in the interim, the sediment shall be kept at -20°C),
c.isolate determination is carried out on the basis of the physical and biochemical characteristics, and on the basis of the characteristics of the nucleic acids,
d.strain typing is possible by the method of spoligotyping or by the RFLP method,
3.detection of the presence of characteristic nucleic acids:
a.by the PCR method (AMPLICOR, detection IS6110 or 16s rRNA)
b.by the TMA method (GEN-PROBE).
TB diagnostics in live animals is based on tuberculin tests.
Tuberculin tests must be carried out in accordance with the Regulation No. 1226/2002/EC, which is in compliance with the OIE "Manual of standards for diagnostic tests and vaccines, 4th edition, 2000".
Under Regulation No. 1226/2002/EC, the maximum number of contaminated animals may also be determined on the basis of the gamma interferon test, as detailed in the OIE "Manual of standards for diagnostic tests and vaccines, 4th edition, 2000".
In the NVI Laboratory of Bacteriology and Mycology, the methods are used that are indicated under items 1, 4a, b, c and 5 above. NVI Lab. is planning to introduce the typing of the M. bovis strains, or to cooperate with the reference laboratories that are carrying it out. At the same time, NVI Lab. intends to follow the new methods in the diagnostics, in particular in the field of confirmation of

nucleic acids, and to simultaneously develop new methods on the basis of the quantitative PCR technique.

Control program/mechanisms

The control program/strategies in place

The disease has been controlled for several years on the basis of the annual order or rules. The programme is carried out in the scope of systematic monitoring and control of diseases in animal populations.
In 2003, all animals older than 6 weeks and all breeding bulls in insemination centres and natural mating were subjected to tuberculin testing. No agent was found. Status: in 2003, 44,276 herds were officially tuberculosis-free. In 2004, all animals older than 6 weeks in herds that obtained the officially tuberculosis-free status in the previous year were subjected to tuberculin testing. At the end of 2004, 99.983% of bovine herds were officially tuberculosis-free, while the tuberculosis-free status was temporarily suspended for 8 herds due to incompliance with the obligation to conduct tests.
Since the annual average of herds has not exceeded 1% in the recent two one-year control periods, the interval between two regular investigations was extended to two years, which is why cattle was not tuberculin-tested in 2005. In 2006, all animals older than 6 weeks were tuberculin-tested. In addition all samples of lungs with pneumonic changes in animals older then 2 years were bacteriologically examined for presence of M.bovis in 2006.

National control program is carried out in accordance with:
- national Rules on contagious animal disease (rules define the conditions for officially tuberculosis-free bovine herd and officially tuberculosis-free status of the country, TB test procedures and interpretation of results, analytical methods for identification of agent, notification system)
- national Rules on systematic monitoring of animal diseases and vaccination issued every year (rules define the sampling strategy for every year);
- national Rules on measures for detection, prevention and eradication of tuberculosis in bovine animal (rules define the measures in case of suspected presence of TBC and confirmed presence of TBC.
National control program is harmonised with all existing Community legislation on TBC.
Other control mechanisms:
- Registration or approval of holdings, establishment, transporters, collection centres and dealers, who are subject to veterinary controls
- Identification and registration of animals.
- Regular official veterinary inspections at the holdings.
- Movement of animals accompanied by the prescribed documents.
- Veterinary referral form for sick animals and animals from stables with

unverified or suspected epizootiological conditions.
- Measures at suspected and confirmed presence of TBC.
- Assessment and conferring of officially tuberculosis-free status.

Measures in case of the positive findings or single cases

Measures at suspected presence of TBC
At the suspect holding, official control shall be introduced, epizootiological investigation shall be carried out as well as the necessary laboratory tests, and the status of the herd shall be temporarily withdrawn. Furthermore, the following measures shall be ordered:
- prohibition of movement from and to the holding with the exception of the movement to the slaughterhouse where animals are to be slaughtered under official supervision,
- all the animals which have reacted positively to the intradermal tuberculin test must be removed for slaughter under official supervision,
- isolation of animals suspected to have TBC; subject to preliminary heat treatment, the milk of such animals may be used as food for other animals at the holding; the milk of other animals may be used as food for humans, provided that it is at least pasteurised in the diary under official supervision,
- setting up of disinfection barriers at the exit from and entry to the holding and into individual facilities where cattle is kept.

Measures at confirmed presence of TBC
Furthermore, the following measures shall be implemented at the infected holding:
- the status of officially TBC-free herd is temporarily suspended;
- isolation of all the animals in which the disease has been identified because or they did not react negatively to tests and which could be infected, as estimated on the basis of the epizootiological data;
- the animals stated in the previous indent shall be slaughtered within 30 days of receiving the results of performed tests under the official supervision;
- prohibited marketing of the products of cattle origin from the infected holding;
- prohibited removal of feed and manure; the manure removed from all the facilities in which cattle is kept must be stored at a location to which the susceptible animals may not access; disinfection of the solid and liquid manure, storage of manure for a period of at least three months. Disinfection shall not be necessary if manure is covered with a layer of uninfected manure or soil.
- cleaning and disinfecting;
- intradermal tuberculin test in all cattle at the holding in accordance with the rules regulating contagious animal diseases;
- other recovery measures.

In animals that have shown positive reaction to intradermal tuberculin test, or when the disease is suspected on the basis of clinical signs or during the pathoanatomical examination, the decision if meat of animal is fit for human consuption shall be assessed in accordance with the provisions of hygene regulations.

The officially tuberculosis-free status of a herd shall not be restored until the disinfection of the premises and equipment has taken place, and until all the remaining animals over six weeks of age have reacted negatively to at least two consecutive intradermal tuberculin tests â€“ the first test shall be carried out at least 60 days, and the second test at least 4 months up to a maximum of 12 months, upon culling the last positive reactor.

Notification system in place

According to Rules on animal disease the notification of disease is mandatory. In case of a suspected presence of disease, all the necessary steps shall immediately be taken in order to confirm the presence of disease, or to reverse the suspicion thereof. Veterinary administration of the RS officially confirm the presence of disease.
Natural and legal persons shall immediately notify a Regional Office of VARS or a veterinary organisation in case they establish a threat to animal health or as a consequence thereof to human health, present within the required deadline and free of charge the data on the state of health of the animals, on the safety of animal products and animal feed and on the use of medicinal products and implementation of measures, and enable the verification of the data presented (Veterinary Compliance Criteria Act).
When the presence of a disease is suspected the veterinary organisation shall immediately inform the Regional Office of the VARS of the suspected disease.
The designated laboratory shall immediately inform the Regional Office of the VARS on the results of diagnostic test by telephone and by fax or via email.
In case of a primary outbreak of disease in the country, the designated laboratory shall immediately communicate the results of diagnostic test by telephone and by fax or via email to the Main Office of the VARS.
The designates laboratory must report the results of diagnostic test via computer database CIS VURS-EPI.
In the case of a zoonosis, the official veterinarian shall notify of the suspected presence of disease also the competent public health services.

Results of the investigation

In 2008 TB testing was carried out 446.699 bovine animals. For bacteriological examination 18 samples was sent and all were negative. At the end of 2008,

38.628 (100%) of herds were officially tuberculosis-free.

National evaluation of the recent situation, the trends and sources of infection

The presence of tuberculosis (Mycobacterium bovis) was not confirmed in 2008.

Relevance of the findings in animals to findings in foodstuffs and to human cases

In Slovenia, taking into account the results of testing, the possibility of transmission of the disease to humans is negligible.

Table Bovine tuberculosis in countries and regions that do not receive Community co-financing for eradication programmes

Region	Total number of existing bovine		Officially free herds		Infected herds		Routine tuberculin testing		Number of tuberculin tests carried out before the introduction into the herds (Annex A(I)(2)(c) third indent (1) of Directive 64/432/EEC)	Number of animals with suspicious lesions of tuberculosis examined and submitted to histopathological and bacteriological examinations	Number of animals detected positive in bacteriological examination
	Herds	Animals	Number of herds	%	Number of herds	%	Interval between routine tuberculin tests	Number of animals tested			
SLOVENIJA	38628	466670	38628	100	0	0	2	446699	0	18	0
Total	38628	466670	38628	100.0	0	0.0	2	446699	0	18	0
Total - 1											

2.6 BRUCELLOSIS

2.6.1 General evaluation of the national situation

A. Brucellosis general evaluation

History of the disease and/or infection in the country

Human cases of brucellosis are notifiable by National law on infectious diseases (Official Gazette number 69/1995, revised 33/ 2006).

Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia.

Brucellosis in Slovenia has been notifiable for more than 50 years.

Human infections were generally alimentary and between 1945 and 1954 549 cases were registered in littoral Slovenia (Slovensko Primorje) alone.

Brucelosis in bovine animals was eliminated in 1961. The disease in goat has been eliminated already in 1955.

National evaluation of the recent situation, the trends and sources of infection

Human brucellosis has not been considered as epidemiological problem for a long time.

The possibility of importation of disease exists.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

Source of infection was in most cases milk, cheese, and milk products. In last time most human cases are imported.

Recent actions taken to control the zoonoses

Epidemiological and laboratory investigation of all suspected cases.

Suggestions to the Community for the actions to be taken

None, as the disease is not considered as epidemiological problem in Slovenia; otherwise continuation of the existing control programmes.

2.6.2 Brucellosis in humans

A. Brucellosis in humans

Reporting system in place for the human cases

Human cases of brucellosis are notifiable by National law on infectious diseases (Official Gazette number 69/1995, revised 33 /2006).
Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia.
Brucellosis in Slovenia is notifiable for more than 50 years.

Case definition

EC /ECDC definition.

Diagnostic/analytical methods used

Brucella specific antibody response by the standard agglutination test (SAT), ELISA or equivalent tests

Notification system in place

Human cases are notifiable by national law on infectious diseases. Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification was introduced after second world war.

History of the disease and/or infection in the country

BÃ¶hm O. Caprine-ovine brucellosis in Istria and the Slovenian littoral in the middle of the 20th:

From an epizootiological point of view, the sheep and goat husbandry of Mediterranean Slovenia, Croatian Istria and southeastern Friuli (Isonzo plain) had some important attributes. In the middle of the 20th century more than 5,000 sheep, which were kept and bred in small flocks of between 50 and 150 animals, migrated seasonally to the Isonzo (Soa) plain and western Istria during winter, and to the mountainous inland regions during summer. Both the ovine and caprine Brucella melitensis infections started in the 1930's and became panzootic

during World War II and the years immediately following it.
Another epidemiologically important feature was the production of cheese from the ewes' milk. Human infections were generally alimentary and between 1945 and 1954 549 cases were registered in littoral Slovenia (Slovensko Primorje) alone.
The Yugoslav eradication program, which involved the testing of animals and immediate culling of reactors, was a radical one. Where 30 % or more of a flock tested positively, the entire flock was eliminated.
In 1952 brucellosis was eliminated in Slovenia.
The danger of reimportation of disease still exists.

Results of the investigation

In 2008 we identified 2 cases of brucelosis, who were probably imported.

National evaluation of the recent situation, the trends and sources of infection

Human brucellosis is not considered as epidemiological problem for a long time.

Relevance as zoonotic disease

Human brucellosis is not considered as epidemiological problem for a long time (more than 20 years).

Table Brucella in humans - Species/serotype distribution

Brucella	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
	2	**0.1**	**0**	**0**	**0**	**0**
Brucella spp., unspecified	2	0.1				

Table Brucella in humans - Age distribution

Age Distribution	Brucella spp.		
	All	M	F
25 to 44 years	1	1	
45 to 64 years	1	1	
Total:	2	2	0

2.6.3 Brucella in animals

A. Brucella abortus in bovine animals

Status as officially free of bovine brucellosis during the reporting year

The entire country free

Officially free status of bovine brucellosis was granted to Slovenia with the Commission Decision 399/2007/EC.

Monitoring system

Sampling strategy

In accordance with the provisions of Annex A, point II. A of Council Directive 64/432 to retain the officially brucellosis free status of the country the following sampling scheme has been implemented:
According to the Rules on carrying out the systematic monitoring of contagious diseases and vaccination in 2007, the following examination was carried out:
- all bovine animals older than 24 months was examined in 20% of herds, with the exception of male animals, intended for slaughter;
- notification of abortions of whatever cause and further investigation if indicated.

Samples are taken by veterinarians of the veterinary organisations performing public veterinary service on the basis of concession.
Rose Bengal has been used as a screening test and CFT has been used as a confirmatory test.

Frequency of the sampling

Annualy

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

The method used for taking blood samples is aseptic venipuncture. Blood is taken from the jugular vein or tail vein and put into sterile test tubes. Immediately after taking the samples, the test tubes for obtaining the serum are left for some time at room temperature. When the coagulation is completed, the test tube is put into the refrigerator at 4 oC. Blood samples must be kept in a cool environment (cooling bag) during the transport and must be delivered to the analytical laboratory within 48 hours after sampling.

Case definition

The disease is suspected if:
- an inconclusive or positive reaction with serological confirmatory test was identified in the framework of regular monitoringÍ¾ the confirmatory serological test and the assessment of the results are carried out in accordance with the Rules on contagious animal diseases;
- one or more clinical signs appear : abortion, late placenta, infection of testicles and epididymis, arthritis, which could be in causal relationship with other clinical signs
- animals came into contact with people or animals suspected to have been infected or are infected with Brucellosis

The disease is confirmed if:
â€“ the agent has been isolated or
â€“ the brucellosis skin test was positive or
â€“ clinical signs have been found and the results of laboratory tests are positive.
Veterinary administration of the RS officially confirm the presence of disease.

Diagnostic/analytical methods used

Identification of the agent (OIE Manual, last edition)
screening test - Rose Bengal (OIE Manual, last edition)
confirmatory test - Complement fixation test(OIE Manual, last edition)

Vaccination policy

Vaccination prohibited

Control program/mechanisms

The control program/strategies in place

National control program is carried out in accordance with:
- Rules on animal disease (rules define the conditions for officially brucellosis free bovine herd and officially brucellosis free status of the country, test procedures and interpretation of results, notification system)
- Rules on systematic monitoring of animal diseases and vaccination issued every year(rules define the sampling strategy for every year)Í¾
- Rules on measures for detection, prevention and eradication of brucellosis in bovine animal (rules define the measures in case of suspected and confirmed presence of brucellosis, case definition).

National control program is harmonised with all existing Community legislation on Brucellosis.
Other control mechanisms:
â€¢ Registration or approval of holdings, establishment, transporters, collection centres and dealers, who are subject to veterinary controls
â€¢ Identification and registration of animals.
â€¢ Regular official veterinary inspections at the holdings.
â€¢ Movement of animals accompanied by the prescribed documents.

â€¢ Veterinary referral form for sick animals and animals from stables with unverified or suspected epizootiological conditions.

Measures in case of the positive findings or single cases

Rules on the detection, prevention and eradication of brucellosis (Ur. l. RS, st. 91/2005, 13/2006)

1. Measures at suspected presence of brucellosis
Measures to be implemented at suspect holding include:
- immediate suspension of officially brucellosis free status of the herd;
- ban on movement on and from the holding in ruminants, pigs and horses with the exception of the movement to the slaughterhouse where animals are to be slaughtered under official supervision;the decision if meat of animal is fit for human consuption shall be assessed in accordance with the provisions of hygene regulations.
- isolation of animals susceptible for the disease; milk from those animals can be used for feeding animals on the same holding after heat treated; milk from other animals on the holding can be used for human consumption after heat treated (pasteurized)under official supervision in a dairy establishment;
- carrying out of the necessary diagnostic investigations
- epidemiological investigation;
- setting up of disinfection barriers at the exit from and entry to the holding and into individual facilities where cattle is kept.

Measures at confirmed presence of brucellosis
Once brucellosis is officially confirmed the following measures are introduced (beside the above mentioned):
- withdrawal of officially brucellosis free status of the herd;
- census of all infected animals on the holding, and animals suspected to be infected;
- ban on trade of the products of animal origin or animal products;
- isolation and slaughter of infected cattle and all cattle suspected to be infected under official supervision;cattle has to be slaughtered within 30 days after confirmation of the disease;the decision if meat of animal is fit for human consuption shall be assessed in accordance with the provisions of hygene regulations.
- harmless disposal of dead and culled animals, aborted foetuses, placentas and ovarial fluids;
- harmless disposal of waste, manure, litter, by which the disease can be transmitted;
- ban of removal of feed and manure; the manure must be stored at a location to which the susceptible animals may not access, for a period of at least three months; disinfection and covering of the manure with a layer of uninfected manure or soil

- cleaning and disinfecting
- other recovery measures

The measures at the infected holding shall remain in force until the status of officially brucellosis-free herd is restored.

The officially brucellosis-free status of the herd may be restored, when all the animals having been in the herd at the time of the outbreak, are removed from the herd, or when all animals in the herd are subjected to examination, and where the results of two consecutive tests carried out in a 60-day interval on all animals older than 12 months are negative, where the first test shall be carried out at least 30 days after the removal of the last infected animal. In case of cows, which had been pregnant at the time of the outbreak of infection, the final test shall be carried out at least 21 days after calving of the last of the cows, which had been pregnant at the time of the outbreak of infection.

Notification system in place

According to Rules on animal disease the notification of disease is mandatory. In case of a suspected presence of disease, all the necessary steps shall immediately be taken in order to confirm the
presence of disease, or to reverse the suspicion thereof. Veterinary administration of the RS officially confirm the presence of disease.
Natural and legal persons shall immediately notify a Regional Office of VARS or a veterinary organisation in case they establish a threat to animal health or as a consequence thereof to human health, present within the required deadline and free of charge the data on the state of health of the animals, on the safety of animal products and animal feed and on the use of medicinal products and implementation of
measures and enable the verification of the data presented (Veterinary Compliance Criteria Act).
When the presence of a disease is suspected the veterinary organisation shall immediately inform the Regional Office of the VARS of the suspected disease.
The designated laboratory shall immediately inform the Regional Office of the VARS on the results of diagnostic test by telephone and by fax or via email.
In case of a primary outbreak of disease in the country,the designated laboratory shall immediately communicate the results of diagnostic test by telephone and by fax or via email to the Main Office of
the VARS.
The designates laboratory must report the results of diagnostic test via computer database CIS VURS EPI.
In the case of a zoonosis, the official veterinarian shall notify of the suspected presence of disease also the competent public health services.

Results of the investigation

In 2008, among the 41.831 examined animals (7.361 herds), none were positive. At the end of 2008, 38.628 herds (100%) were officially brucellosis-free.
In addition, 411 bovine abortions were reported, B.abortus was excluded in all cases.

National evaluation of the recent situation, the trends and sources of infection

In Slovenia, taking into account the results of testing, the possibility of transmission of the disease to
humans is negligible.

Additional information

Compulsory notification of all abortions of whatever cause is in place in accordance with Council Directive 64/432/EEC.

B. Brucella melitensis in sheep

Status as officially free of ovine brucellosis during the reporting year

The entire country free

Officially free status of ovine/caprine brucellosis was granted to Slovenia with the Commission Decision 2005/179/EC.

Monitoring system

Sampling strategy

Following the recognition of officially brucellosis (B. melitensis) free status, animals have been
tested in accordance with Point II.2.i of Annex A of Council Directive 91/ 68/ EEC (5% of the ovine and caprine animals over six months of age).
According to the Rules on carrying out the systematic monitoring of contagious diseases and vaccination in 2008, 5% of sheep and goats older than 6 months was serologically tested for Brucella melitensis at the registered holdings with the aim of maintaining the status of officially
brucellosis free country.
Samples were taken by veterinarians of the veterinary organisations performing public veterinary service on the basis of concession.
Rose Bengal has been used as a screening test and CFT has been used as a confirmatory test.

Frequency of the sampling

Annualy.

Methods of sampling (description of sampling techniques)

The method used for taking individual blood samples is aseptic venipuncture. Blood is taken from the jugular vein and put into sterile test tubes. Immediately after taking the samples, the test tubes for obtaining the serum are left for some time at the room temperature. When the coagulation is completed, the test tube is put into the refrigerator at 4 oC. Blood samples must be kept in a cool environment (cooling bag) during the transport and must be delivered to the analytical laboratory within 48 hours after sampling.

Case definition

The presence of the disease is officially confirmed or excluded by the VARS on the basis of clinical signs and the results of investigations.
In the event of an epidemic, the VARS officially confirms the presence of the disease on the basis of clinical signs and/ or the results of epizootiological inquiries.

Diagnostic/analytical methods used

Screening test - Rose Bengal
Confirmatory test - CFT

Vaccination policy

Vacination prohibited

Control program/mechanisms

The control program/strategies in place

National control program is carried out in accordance with:
- Rules on contagious animal disease (rules define the conditions for officially brucellosis free ovine/ caprine herd and officiallly brucellosis free status of the country,test procedures and interpretation of results, notification system)
- Rules on systematic monitoring of animal diseases and vaccination issued every year(rules define the sampling strategy for every year)Í¾
- Instruction on measures for detection, prevention and eradication of Brucellosis (rules define the measures in case of suspected presence and confirmed presence of disease, case definition).

National control program is harmonised with all existing Community legislation on Brucellosis in ovine/ caprine animals.
Other control mechanisms:
â€¢ Registration or approval of holdings, establishment, transporters, collection centres and
dealers, who are subject to veterinary controls
â€¢ Identification and registration of animals.
â€¢ Regular official veterinary inspections at the holdings.
â€¢ Movement of animals accompanied by the prescribed documents.
â€¢ Veterinary referral form for sick animals and animals from stables with unverified or suspected epizootiological conditions.

Measures in case of the positive findings or single cases

Measures at suspected presence of brucellosis
At suspected presence of brucellosis, the authorised veterinary organisation shall immediately confirm or reverse the suspicion, and immediately notify thereof the relevant Regional Office of the VARS, and the NVI. Measures to be implemented at suspect holding include:
- laboratory examination of carcasses and blood samples;
- epidemilogical investigation;
- harmless diaposal of dead animals;
- quarantine of the infected holding
- census of all animals on the holding, susceptible for the disease, affected, suspected to be infected and dead; census shall be up to date, all newborn animals, and animals died during the infection have to be registered;
- isolation of animals susceptible for the disease,
- ban on movement of susuceptible animals inside the holding, taking into account possible vectors of the disease;
- ban on movement on and from the holding;
- ban on movement of all animals and stuff by which the disease can be transmitted;

The same measures can be introduced also for the holdings, which are suspected to be infected.

Measures at confirmed presence of brucellosis
Once brucellosis is officially confirmed the following measures are introduced (beside the above mentioned):
- ban on trade with animals, animal products, b-products, waste, feeding stuff and all other stuff by which the disease can be transmitted;
- slaughter of infected acattle;
- harmless disposal of dead and culled animals, aborted foetuses, placentas and ovarial fluids;
- hrmless disposal of waste, manure, litter, by which the disease can be transmitted;
- testing of all susceptible animals on the holding;
- ban on use of milk from the infected holding;
- ban on use of animals from the infected holding in breeding purposes;
- DDD;
The same measures can be introduced also for the holdings, which are suspected to be infected.
Cessation of disease
It shall be considered that the disease has ceased, when the serological investigation of animals upon three examinations in an interval of 3 months has shown negative results, and when all the
prescribed measures have been implemented.

The decision if meat of animal is fit for human consuption shall be assessed in accordance with the provisions of hygene regulations.

Notification system in place

According to Rules on animal disease the notification of disease is mandatory. In case of a suspected presence of disease, all the necessary steps shall immediately be taken in order to confirm the
presence of disease, or to reverse the suspicion thereof. Veterinary administration of the RS officially confirm the presence of disease.
Natural and legal persons shall immediately notify a Regional Office of VARS or a veterinary organisation in case they establish a threat to animal health or as a consequence thereof to human health, present within the required deadline and free of charge the data on the state of health of the animals, on the safety of animal products and animal feed and on the use of medicinal products and implementation of measures and enable the verification of the data presented (Veterinary Compliance Criteria Act).
When the presence of a disease is suspected the veterinary organisation shall immediately inform the Regional Office of the VARS of the suspected disease.
The designated laboratory shall immediately inform the Regional Office of the VARS on the results of diagnostic test by telephone and by fax or via email.
In case of a primary outbreak of disease in the country,the designated laboratory

shall immediately communicate the results of diagnostic test by telephone and by fax or via email to the Main Office of
the VARS.
The designates laboratory must report the results of diagnostic test via computer database CIS VURS EPI.
In the case of a zoonosis, the official veterinarian shall notify of the suspected presence of disease also the competent public health services.

Results of the investigation

No case of disease has been found since 1951.
In 2008, 4.789 sheeps/goats were examined (129 herds), none were positive. At the end of 2008, 7.230 herds (100%) were officially brucellosis-free.

National evaluation of the recent situation, the trends and sources of infection

No case of disease has been found since 1951.

Relevance of the findings in animals to findings in foodstuffs and to human cases

In Slovenia, taking into account the results of testing, the possibility of transmission of the disease to humans is negligible.

C. Brucella melitensis in goats

Status as officially free of caprine brucellosis during the reporting year

The entire country free

Officially free status of ovine/caprine brucellosis was granted to Slovenia with the Commission Decision 2005/179/EC.

Monitoring system

Sampling strategy

Following the recognition of officially brucellosis (B. melitensis) free status, animals have been tested in accordance with Point II.2.i of Annex A of Council Directive 91/68/EEC (5% of the ovine and caprine animals over six months of age).
According to the Rules on carrying out the systematic monitoring of contagious diseases and vaccination in 2008, 5% of sheep and goats older than 6 months was serologically tested for Brucella melitensis at the registered holdings with the aim of maintaining the status of officially brucellosis-free country.
Samples were taken by veterinarians of the veterinary organisations performing public veterinary service on the basis of concession.
Rose Bengal has been used as a screening test and CFT has been used as a confirmatory test.

Frequency of the sampling

Annualy.

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

The method used for taking individual blood samples is aseptic venipuncture. Blood is taken from the jugular vein and put into sterile test tubes. Immediately after taking the samples, the test tubes for obtaining the serum are left for some time at the room temperature. When the coagulation is completed, the test tube is put into the refrigerator at 4 oC. Blood samples must be kept in a cool environment (cooling bag) during the transport and must be delivered to the analytical laboratory within 48 hours after sampling.

Case definition

The presence of the disease is officially confirmed or excluded by the VARS on the basis of clinical signs and the results of investigations.
In the event of an epidemic, the VARS officially confirms the presence of the disease on the basis of clinical signs and/or the results of epizootiological inquiries.

Diagnostic/analytical methods used

- Rose Bengal test - screening test
- Complement fixation test - confirmatory test

Vaccination policy

Vaccination prohibited

Control program/mechanisms

The control program/strategies in place

National control program is carried out in accordance with:
- Rules on contagious animal disease (rules define the conditions for officially brucellosis free ovine/caprine herd and officially brucellosis free status of the country, test procedures and interpretation of results, notification system)
- Rules on systematic monitoring of animal diseases and vaccination issued every year(rules define the sampling strategy for every year)Í¾
- Instruction on measures for detection, prevention and eradication of Brucellosis (rules define the measures in case of suspected presence and confirmed presence of disease, case definition).

National control program is harmonised with all existing Community legislation on Brucellosis in ovine/caprine animals.

Other control mechanisms:

â€¢ Registration or approval of holdings, establishment, transporters, collection centres and dealers, who are subject to veterinary controls

â€¢ Identification and registration of animals.

â€¢ Regular official veterinary inspections at the holdings.

â€¢ Movement of animals accompanied by the prescribed documents.

â€¢ Veterinary referral form for sick animals and animals from stables with unverified or suspected epizootiological conditions.

Measures in case of the positive findings or single cases

Measures at suspected presence of brucellosis

At suspected presence of brucellosis, the veterinary organisation with concession shall immediately confirm or reverse the suspicion, and immediately notify thereof the relevant Regional Office of the VARS, and the NVI. Measures to be implemented at suspect holding include:
- laboratory examination of carcasses and blood samples;
- epidemilogical investigation;
- harmless diaposal of dead animals;
- quarantine of the infected holding
- census of all animals on the holding, susceptible for the disease, affected, suspected to be infected and dead; census shall be up to date, all newborn animals, and animals died during the infection have to be registered;
- isolation of animals susceptible for the disease,
- ban on movement of susuceptible animals inside the holding, taking into account possible vectors of the disease;

- ban on movement on and from the holding;
- ban on movement of all animals and stuff by which the disease can be transmitted;
The same measures can be introduced also for other holdings, which are suspected to be infected.

Measures at confirmed presence of brucellosis
Once brucellosis is officially confirmed the following measures are introduced (beside the above mentioned):
- ban on trade with animals, animal products, b-products, waste, feeding stuff and all other stuff by which the disease can be transmitted;
- slaughter of infected acattle;
- harmless disposal of dead and culled animals, aborted foetuses, placentas and ovarial fluids;
- hrmless disposal of waste, manure, litter, by which the disease can be transmitted;
- testing of all susceptible animals on the holding;
- ban on use of milk from the infected holding;
- ban on use of animals from the infected holding in breeding purposes;
- DDD;
The same measures can be introduced also for other holdings, which are suspected to be infected.
Cessation of disease
It shall be considered that the disease has ceased, when the serological investigation of animals upon three examinations in an interval of 3 months has shown negative results, and when all the
prescribed measures have been implemented.

The decision if meat of animal is fit for human consuption shall be assessed in accordance with the provisions of hygene regulations.

Notification system in place

According to Rules on animal disease the notification of disease is mandatory. In case of a suspected presence of disease, all the necessary steps shall immediately be taken in order to confirm the
presence of disease, or to reverse the suspicion thereof. Veterinary administration of the RS officially confirm the presence of disease.
Natural and legal persons shall immediately notify a Regional Office of VARS or a veterinary organisation in case they establish a threat to animal health or as a consequence thereof to human
health, present within the required deadline and free of charge the data on the state of health of the animals, on the safety of animal products and animal feed and on the use of medicinal products and

implementation of measures and enable the verification of the data presented (Veterinary Compliance Criteria Act).
When the presence of a disease is suspected the veterinary organisation shall immediately inform the Regional Office of the VARS of the suspected disease.
The designated laboratory shall immediately inform the Regional Office of the VARS on the results of diagnostic test by telephone and by fax or via email.
In case of a primary outbreak of disease in the country,the designated laboratory shall immediately communicate the results of diagnostic test by telephone and by fax or via email to the Main Office of
the VARS.
The designates laboratory must report the results of diagnostic test via computer database CIS VURS EPI.
In the case of a zoonosis, the official veterinarian shall notify of the suspected presence of disease also the competent public health services.

National evaluation of the recent situation, the trends and sources of infection

No case of disease has been found since 1951.
In 2008, 4.789 sheeps/goats were examined (129 herds), none were positive. At the end of 2008, 7.230 herds (100%) were officially brucellosis-free.

Relevance of the findings in animals to findings in foodstuffs and to human cases

In Slovenia, taking into account the results of testing, the possibility of transmission of the disease to humans is negligible.

Additional information

Table Bovine brucellosis in countries and regions that do not receive Community co-financing for eradication programme

Region	Total number of existing bovine		Officially free herds		Infected herds		Surveillance						Investigations of suspect cases								
							Serological tests			Examination of bulk milk			Information about			Epidemiological investigation					
	Herds	Animals	Number of herds	%	Number of herds	%	Number of bovine herds tested	Number of animals tested	Number of infected herds	Number of bovine herds tested	Number of animals or pools tested	Number of infected herds	Number of notified abortions whatever cause	Number of isolations of Brucella infection	Number of abortions due to Brucella abortus	Number of animals tested with serologic al blood tests	Number of suspende d herds	Number of positive animals		Number of animals examined microbio logically	Number of animals positive microbio logically
																		Sero logically	BST		
SLOVENIJA	38628	466670	38628	100	0	0	7361	41838	0	0	0	0	411	0	0	0	0	0	0	0	0
Total	38628	466670	38628	100.0	0	0.0	7361	41838	0	0	0	0	411	0	0	0	0	0	0	0	0
Total - 1																					

Table Ovine or Caprine Brucellosis in countries and regions that do not receive Community co-financing for eradication programme

Region	Total number of existing		Officially free herds		Infected herds		Surveillance			Investigations of suspect cases				
	Herds	Animals	Number of herds	%	Number of herds	%	Number of herds tested	Number of animals tested	Number of infected herds	Number of animals tested with serological blood tests	Number of animals positive serologically	Number of animals examined microbio logically	Number of animals positive microbio logically	Number of suspended herds
SLOVENIJA	7230	180425	7230	100	0	0	129	4789	0	4789	0	0	0	0
Total	7230	180425	7230	100.0	0	0.0	129	4789	0	4789	0	0	0	0
Total - 1														

2.7 YERSINIOSIS

2.7.1 General evaluation of the national situation

A. Yersinia enterocolitica general evaluation

History of the disease and/or infection in the country

Yersiniosis is rarely reported in Slovenia.

From 1990 to 2008 the number of yearly notifications were low, except in 1995, the number of notifications increased to 1092 or incidence, based on notifications, was cca 54/ 100 000 inhabitants.

National evaluation of the recent situation, the trends and sources of infection

Yersinia enterocolitica is notifiable by national Law on Infectious diseases /(official Gazette 69/95, revised 33/2006). Medical doctors and laboratories notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

From year 2000 to 2006 the number of notified cases was between 28 and 80 (max incidence was 4/ 100 000). In 2007 there were 32 cases in 2008 31 cases. In 2008 the incidence was 1,54 / 100 000 inhabitants.

The source of infections is mostly not known. No outbreaks were detected recently.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

-

Recent actions taken to control the zoonoses

-

2.7.2 Yersiniosis in humans

A. Yersinosis in humans

Reporting system in place for the human cases

Yersinia enterocolitica is notifiable by national Law on Infectious diseases (official gazette 69/95, revised 33/2006). Medical doctors notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

Case definition

According to definition of ECDC.

Diagnostic/analytical methods used

Isolation on differential and selective media;
Gram staining;
biochemical identification;
serological tests.

Notification system in place

Yersinia enterocolitica is notifiable by national Law on Infectious diseases (Official Gazette 69/95). Medical doctors notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia.
Notification since 1977.

History of the disease and/or infection in the country

Yersiniosis is rarely reported in Slovenia.

From 1990 to 2008 the number of yearly notifications were low, except in 1995, the number of notifications increased to 1092 or incidence, based on notifications, was cca 54/ 100 000 inhabitants.

Results of the investigation

Yersinia enterocolitica is notifiable by national Law on Infectious diseases /(official Gazette 69/95, revised 33/2006). Medical doctors and laboratories notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

From year 2000 to 2006 the number of notified cases was between 28 and 80 (

max incidence was 4/ 100 000). In 2007 there were 32 cases in 2008 31 cases. In 2008 the incidence was 1,54 / 100 000 inhabitants.

The source of infections is mostly not known. No outbreaks were detected recently.The number of notified cases ranged from 28 to 80 from 2000 to 2006. In 2007 there were 32 cases. (The incidence increased from 1,4 to 4 / 100 000 inhabitants).
Real number of cases is probably greater due to underreporting.

National evaluation of the recent situation, the trends and sources of infection

The real burden of disease is not known because of undereporting of disease.
Source of infection is mostly not known.

Relevance as zoonotic disease

According to number of notifications a rare infection.

Table Yersinia in humans - Species/serotype distribution

Yersinia	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
	31	**1.5**	**0**	**0**	**0**	**0**
O:3	31	1.5				

Table Yersinia in humans - Age distribution

Age Distribution	Y. enterocolitica		
	All	M	F
<1 year	2	1	1
1 to 4 years	6	3	3
5 to 14 years	6	4	2
15 to 24 years	7	6	1
25 to 44 years	6	2	4
45 to 64 years	3	2	1
65 years and older	1	1	0
Age unknown	0	0	0
Total:	31	19	12

Table Yersinia in humans - Seasonal distribution

Month	Y. enterocolitica
	Cases
January	3
February	4
March	1
April	1
May	4
June	3
July	2
August	3
September	1
October	2
November	3
December	4
not known	0
Total:	31

2.7.3 Yersinia in animals

A. Yersinia enterocolitica in pigs

Monitoring system

Sampling strategy

Animals at slaughter (herd based approach)

VARS
Sampling was carried out in all approved slaughterhouses with capacity of the slaughter more than 1000 porcine animals per year (97% of all yearly porcine slaughter). Sampled were animals raised in the Republic of Slovenia only.
From single slaughter batch, ten (10) porcine animals were sampled.
Sampling was carried out by the slaughterhouse official veterinarians.

Frequency of the sampling

Animals at slaughter (herd based approach)

Sampling distributed evenly throughout the year

Type of specimen taken

Animals at slaughter (herd based approach)

Other: Tonsile swabs

Methods of sampling (description of sampling techniques)

Animals at slaughter (herd based approach)

Tonsil swabs shall be taken from 10 randomly selected pigs immediately after slaughter. A dry swab shall be placed against the tonsil wall, pressing the thumb and the index finger against the soft palate and rotating the swab by 360 degrees. The swab shall be placed in a dry test tube.
Samples must be delivered to the laboratory in the shortest possible time, as a rule, immediately after sampling (on the same day)or within 24 hours after sampling. In exceptional cases (holidays, weekend), the samples can be delivered to the laboratory within 80 hours after sampling. The laboratory must start with the investigation within 24 hours after receiving the material. If samples are delivered to the laboratory within 72 to 80 hours after sampling, samples must be tested immediately after the receipt. In the period from the sampling to the beginning of the analysis, the sampled material must be stored in a cold place, at the temperature of 4oC(+/-2oC) and may not be exposed to light.

Case definition

Animals at slaughter (herd based approach)

Isolation of agent from pooled sample of ten (10) tonsile swabs.

Diagnostic/analytical methods used

Animals at slaughter (herd based approach)

Bacteriological method: modified ISO 10273:2003

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production, come into direct contact with animals, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP and record keeping.

Control program/mechanisms

The control program/strategies in place

The control mechanisms envisages inter alia as follows:
- registration or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary control,
- identified and registrated animals,
- regular official veterinary checks on holdings,
- movements of animals accompanied by prescribed documents,
- veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation.

Measures in case of the positive findings or single cases

/

Notification system in place

Official notification of monitoring results.

Results of the investigation

In 2008, the porcine tonsile swabs from 384 slaughter batches were taken at slaughter establishments. Yersinia enerocolitica was detected in 74 samples/slaughter batches (19,27%).

Table Yersinia in animals

	Source of information	Sampling unit	Units tested	Total units positive for Yersinia spp.	Y. enterocolitica	Yersinia spp., unspecified	Y. enterocolitica-O:3	Y. enterocolitica-O:9	Y. enterocolitica-unspecified
Pigs - - tonsil - Monitoring - official sampling (tonsile swabs)	VARS	batch	384	74	74	0	0	0	0

2.8 TRICHINELLOSIS

2.8.1 General evaluation of the national situation

A. Trichinellosis general evaluation

History of the disease and/or infection in the country

Human cases are notifiable by National Law on Infectious Diseases (official Gazette number 69/1995, revised 33 /2006).
Medical doctors are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

National evaluation of the recent situation, the trends and sources of infection

Trichinellosis is a rare human disease in Slovenia. No cases were notified in 2004, 2005 and 2007; there was one case notified in 2006 and 2008.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

Trichinellosis is a rare zoonosis in Slovenia.

No human cases were recorded in last years except one case in 2006 and 2008.

Most of sporadic cases in last 20 years were infected because of ingestion of imported meat.

Recent actions taken to control the zoonoses

Control of meat of pigs, horses, game on trichinellosis; surveillance of human cases.

Suggestions to the Community for the actions to be taken

Routine meat inspection of pig carcasses.

2.8.2 Trichinellosis in humans

A. Trichinellosis in humans

Reporting system in place for the human cases

Human cases are reported by practitioners who are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of Republic Slovenia.

Case definition

According to definition of EC /ECDC.

Diagnostic/analytical methods used

Serological tests, ELISA and Westernblot; parasite cysts in bioptic specimen of skeletal muscle.

Notification system in place

Human cases are notifiable by National Law on Infectious Diseases (official Gazette number 69/1995, revised 33/2006).
Medical doctors are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

History of the disease and/or infection in the country

Trichinellosis is a rare zoonosis in Slovenia.

No human cases were recorded in last years except in 2006 and 2008 one case was notified.

Most of sporadic cases in last 20 years were infected because of ingestion of imported meat.

In 1989 an outbreak was recorded. 39 people were infected. The source of infection was pork. in the same year there were also 5 sporadic cases.

Another outbreak occured in 1996, 7 people were infected. The source of infection was pork, imported from Croatia.

In 1992 42-years old man died from encephalitis due to T. spiralis.

Results of the investigation

Trichinellosis is a rare human disease in Slovenia. In 2008 one imported cases was notified.

Description of the positive cases detected during the reporting year

There was one reported human case in 2006 and 2008. Infection was contracted

abroad.

National evaluation of the recent situation, the trends and sources of infection

A rare disease in Slovenia.

Relevance as zoonotic disease

In the moment not important as zoonotic disease.

Table Trichinella in humans - Species/serotype distribution

Trichinella	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
	1	**0.05**	**0**	**0**	**0**	**0**
Trichinella spp.	1	0.05				

Table Trichinella in humans - Age distribution

Age Distribution	Trichinella spp.		
	All	M	F
25 to 44 years	1	1	0
Total:	1	1	0

2.8.3 Trichinella in animals

A. Trichinella in pigs

Monitoring system

Sampling strategy

General

VARS
The presence of Trichinella in carcasess of pigs is monitored in the framework of mandatory post mortem examination of the animal in approved slaughterhouses or on the tourist farms.
In the approved slaughterhouses, systematic testing is carried out for Trichinella in all pig carcasses. Furthermore, pigs slaughtered on the tourist are tested for the presence of Trichinella in the framework of mandatory post mortem examination.
The epidemiological unit is the animal. Samples are taken by official veterinarian.

Frequency of the sampling

General

All porcine animals slaughtered are subjected to examination for Trichinella - either at approved slaughterhouses or at tourist farms. Only testing of pigs slaughtered on the holdings of origin for private domestic consumption is not mandatory.

Type of specimen taken

General

Fresh meat - diaphragm, jaw muscle, lingual muscle, abdominal muscle, front leg muscles, intercostal muscels or other muscles (if aforementioned muscles are lacking).
In case of trichinoscopic examination both diaphragm pillar are taken.

Methods of sampling (description of sampling techniques)

General

In accordance with the Commission Regulation (EC)No. 2075/2005 laying down specific rules on official controls for Trichinella in meat, as stipulated in:
- Annex I, Chapter I, Point 2
- Annex I, Chapter III, Point 2

Case definition

General

The disease shall be considered officially confirmed by identifying the agent of disease; in the opposite case it shall be considered that the disease has officially been ruled out. Positive animal - animal where Trichinella spp. has been detected.

Diagnostic/analytical methods used

General

Tests for Trichinella is carried out in the laboratories within approved slaughterhouses by official veterinarians or official auxiliaries and in designated laboratories according to Regulation of the European Parliament and of the Council No. 882/2004.
Methods used:
- Reference method of detection: Magnetic stirrer method for pooled sample digestion (Annex I, Chapter I of Reg.(EC)No.2075/2005)
- Trichinoscopic examination (Annex I,Chapter III of Reg. (EC)No.2075/2005)

In all laboratories within approved slaughterhouses reference method of detection is used.

Preventive measures in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GHP, and record keeping.

Control program/mechanisms

The control program/strategies in place

- Mandatory testing of all slaughtered pigs,
- Registration or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary control,
- Identified and registered animals,
- Regular official veterinary checks on holdings,
- Movements of animals accompanied by prescribed documents,
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation,
- Holder of a tourist farm activity shall at least 48 hours prior to slaughtering porcine animals notify an official veterinarian of the relevant Regional Office of VARS, who shall carry out the ante-mortem examination of animals prior to

slaughter and a post-mortem examination of the meat upon slaughter. Bussines operator is obligated to assure the trichinoscopic axamination of the porcine meat,
- Where the meat is intended for placing on the market it shall be ensured that the fresh porcine, in case it has not been examined for trichinae, is subjected to freezing process,
- Fresh porcine meat intended for placing on the market as fresh meat shall be examined for trichinae,
- Identification of foodstuffs placed on the market accompanied by prescribed documents,
- Obligate informing between veterinary and health service in case of zoonoses occurrence in animals or humans,
- Measures for the detection, prevention and suppression of disease.

Measures in case of the positive findings or single cases

Meat of the trichinae-infested animals shall be assessed as unfit for human consumption. Measures may be introduced after the public health service has notified the veterinary service of an onset of clinical signs of disease in humans. Depending on the nature of disease, or where necessary, VARS and public health service shall conduct the epidemiological and/or epizootiological investigations. Based on the investigation results, VARS may institute the required veterinary measures in animal husbandry, or other necessary measures.

Notification system in place

At the presence of a contagious disease, or signs giving rise to suspicion that an animal has fallen sick or died of a contagious disease, the animal keeper shall immediately notify thereof the veterinary organisation. A veterinary organisation shall within 24 hours notify of disease the relevant VARS Regional Office in cases only, where the diagnostic test results have confirmed the presence of disease. A report on the occurrence of such diseases shall be drawn up on a monthly basis, by day 10 in the month for the previous month, in the electronic form, via VARS Central Information System (CIS VURS-EPI).

At a suspected or confirmed presence of disease, the competent public health services shall be notified as well.

In case of detection of Trichinella in laboratories within approved slaughterhouses or designated laboratories according to Regulation of the European Parliament and of the Council (EC)No. 882/2004, official veterinarian or laboratories must enter the data into the CIS EPI application for reporting the disesase of animals.

In case of detection of Trichinella in the laboratories within veterinarian organisation with concession the organisation must immediately inform Regional office of VARS.

The Main Office of VARS collects the data from Regional Offices of VARS about confirmed cases of trichinelosis within the ante- and post-mortem examinations in slaughterhouses and on tourist farms conducted by the official veterinarians, and applies them in relation to the diagnoses of diseases communicable to man.

Results of the investigation including description of the positive cases and the

In 2008, 384.086 pigs slaughtered in slaughterhouses and 795 pigs slaughtered on tourist farms were examined for trichinae. No case of trichinellosis in porcine animals was confirmed.

National evaluation of the recent situation, the trends and sources of infection

The last case of trichinellosis was confirmed in 1989. According to data, the positive animal was not of Slovenian origin. Since 1989 Trichinella haven't been detected in pigs.

Relevance of the findings in animals to findings in foodstuffs and to human cases

In Slovenia, taking into account the results of testing in pigs, the possibility of transmission of the disease to humans is negligible.

B. Trichinella in horses

Monitoring system

Sampling strategy

VARS
The presence of Trichinella in carcasess is monitored in the framework of mandatory post mortem examination of the animal in approved slaughterhouses.
In the slaughterhouse, systematic testing is carried out for Trichinella in all horse carcasses.
The epidemiological unit is the animal. Samples are taken by official veterinarian or official auxiliaries.

Frequency of the sampling

Examination of Trichinella is carried out on all horses slaughtered at the approved slaughterhouses.

Type of specimen taken

Fresh meat: preferable lingual or jaw muscle, otherwise diaphragm, abdominal muscle, front leg muscles or intercostal muscles (if aforementioned muscles are lacking).

Methods of sampling (description of sampling techniques)

In accordance with the Commission Regulation (EC) No 2075/ 2005 laying down specific rules on official controls for Trichinella in meat, as stipulated in:
- Annex III

Case definition

The disease shall be considered officially confirmed by identifying the agent of disease; in the opposite case it shall be considered that the disease has officially been ruled out.
Positive animal - animal where Trichinella spp. has been detected.

Diagnostic/analytical methods used

Tests for Trichinella is carried out in the laboratories within approved slaughterhouses by official veterinarians or official auxiliaries and in designated laboratories according to Regulation of the European Parliament and of the Council (EC) No. 882/ 2004.
Methods used:
- Reference method of detection: Magnetic stirrer method for pooled sample digestion (Annex I, Chapter I of Reg.(EC)No.2075/2005).
- Trichinoscopic examination (Annex I, Chapter III of Reg.(EC)No.2075/2005).
In all laboratories within approved slaughterhouses reference method of detection is used.

Results of the investigation including the origin of the positive animals

In 2008, 1.477 horses were examined for trichinae. No case of trichinellosis in equidae was confirmed.

Control program/mechanisms

The control program/strategies in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.
In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GHP, and record keeping.

- mandatory testing of all slaughtered equide,
- registration or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary control,
- identified and registered animals,
- regular official veterinary checks on holdings,
- movements of animals accompanied by prescribed documents,
- veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation,
- where the meat is intended for placing on the market it shall be ensured that the fresh horse meat, in case it has not been examined for trichinae, is subjected to freezing process,
- fresh horse meat intended for placing on the market as fresh meat shall be examined for trichinae,
- identification of foodstuffs placed on the market accompanied by prescribed documents,
- obligate informing between veterinary and health service in case of zoonoses occurrence in animals or humans,
- Measures for the detection, prevention and suppression of disease.

Measures in case of the positive findings or single cases

Meat of the trichinae-infested animals shall be assessed as unfit for human consumption. Measures may be introduced after the public health service has notified the veterinary service of an onset of clinical signs of disease in humans. Depending on the nature of disease, or where necessary, VARS and public health service shall conduct the epidemiological and/or epizootiological investigations. Based on the investigation results, VARS may institute the required veterinary measures in animal husbandry, or other necessary measures.

Notification system in place

At the presence of a contagious disease, or signs giving rise to suspicion that an animal has fallen sick or died of a contagious disease, the animal keeper shall immediately notify thereof the veterinary organisation. A veterinary organisation shall within 24 hours notify of disease the relevant VARS Regional Office in cases only, where the diagnostic test results have confirmed the presence of disease. A report on the occurrence of such diseases shall be drawn up on a monthly basis, by day 10 in the month for the previous month, in the electronic form, via VARS Central Information System (CIS VURS-EPI).

At a suspected or confirmed presence of disease, the competent public health services shall be notified as well.

In case of detection of Trichinella in laboratories within approved slaughterhouses or designated laboratories according to Regulation of the European Parliament and of the Council (EC)No. 882/2004, official veterinarian or laboratories must enter the data into the CIS EPI application for reporting the disesase of animals.

In case of detection of Trichinella in the laboratories within veterinarian organisation with concession the organisation must immediately inform Regional office of VARS.

The Main Office of VARS collects the data from Regional Offices of VARS about confirmed cases of trichinelosis within the ante- and post-mortem examinations in slaughterhouses conducted by the official veterinarians, and applies them in relation to the diagnoses of diseases communicable to man.

National evaluation of the recent situation, the trends and sources of infection

In Slovenia, no case of trichinellosis in equidae has been confirmed since testing of equide has been carried out.

Relevance of the findings in animals to findings in foodstuffs and to human cases

In Slovenia, taking into account the findings in equidae, the possibility of transmission of the disease to humans is negligible.

C. Trichinella spp., unspecified in animal - Wild animals

Monitoring system

Sampling strategy

VARS

The presence of Trichinella in carcasess is monitored in the framework of mandatory post mortem examination of the animal in game handling establishments or game collection centres.

Wild boars and other wild game susceptible for trichinella infection is tested for the presence of trichinella in the game handling establishments as part of mandatory post mortem examination.

Small quantities of wild game meat that the game collection centre supplies to local retailers which sell it directly to the final consumers is tested for trichinella in the collection centre as part of mandatory post mortem examination.

The game collection centre for wild game must ensure testing for Trichinella in wild game which are in small quantities supplied directly to the final consumer.

If farmed game is slaughtered in the slaughterhouse systematic testing for Trichinella is carried out in the framework of mandatory post mortem examination.

The epidemiological unit is the animal.

Samples are taken by official veterinarian if animals are tested as part of mandatory post mortem examination. In case when game collection centre supplies small quantities directly to the final consumer the samples are taken by the food bussines operators responsible for game collection centres.

Frequency of the sampling

Compulsory is the examination of wild boars and other farmed or wild game, which may be carriers of trichinae and the meat whereof is intended for public consumption.

Examination for Trichinella is mandatory in all wild boars or other farmed and wild game susceptible to trichinella infection delivered in the game handling establishment.

Examination is also mandatory for wild game which are directly supplied to the final consumer or local retail which supply the meat directly to the final consumer.

Only testing of wild animals intended for private domestic consumption of hunters is not mandatory.

Type of specimen taken

Fresh meat: diaphragm, lingual muscle, jaw muscle, abdominal muscles, intercostal muscles or front leg muscles, as appropriate.

Methods of sampling (description of sampling techniques)

In accordance with the Commission Regulation (EC) No. 2075/2005 laying down

specific rules on official controls for Trichinella in meat, as stipulated in:
- Annex I, Chapter III, Point 2
- Annex III

Case definition

The disease shall be considered officially confirmed by identifying the agent of disease; in the opposite case it shall be considered that the disease has officially been ruled out.
Positive animal - animal where Trichinella spp. has been detected.

Diagnostic/analytical methods used

If samples are taken by official veterinarian examination for Trichinella is carried out in designated laboratories according to Regulation of the European Parliament and of the Council (EC) No. 882/2004.
In case samples are taken by the food bussines operators responsible for game collection centres (for game which is directly supplied to the final consumer or game intended for private domestic consuption of hunters) examination for Trichinella is carried out in laboratories within veterinary organisation with concesion or in designated laboratories according to Regulation of the European Parliament and of the Council (EC) No. 882/2004.
Methods used:
- Reference method of detection: Magnetic stirrer method for pooled sample digestion (Annex I, Chapter I of Reg.(EC) No.2075/2005),
- Trichinoscopic examination (Annex I, Chapter III of Reg.(EC) No.2075/2005).

Preventive measures in place

Persons, who are hunting wild animals for placing on the market for public consumption, shall have the required knowledge of wild animal pathology and of the production and processing of wild game meat after hunting so as to be able to conduct the on-the-spot preliminary examination of wild game.

Control program/mechanisms

The control program/strategies in place

Mandatory examination for Trichinella of all carcasses of wild and farmed game susceptible for trichinella infection which are intended for placing on the market for human consumption.
VARS shall conduct surveillance of possible contagious diseases occurring in particular hunting grounds. In case of detection of a contagious disease, measures depending on the type of disease shall be taken.

Measures in case of the positive findings or single cases

Meat of the trichinae-infested animals shall be assessed as unfit for human consumption.

Notification system in place

In case of detection of Trichinella designated laboratories according to Regulation of the European Parliament and of the Council (EC) No. 882/2004 laboratories must enter the data on the positive result into the CIS EPI application for reporting the disesase of animals.
In case of detection of Trichinella in the laboratories within veterinarian organisation with concession the organisation must immediately (in 24 hours at the latest) inform Regional office of VARS.

VARS shall inform also the competent public health service of confirmed presence of the disease.

Results of the investigation including the origin of the positive animals

In 2008, 1411 wild boars and 33 bears were examined in game handling establishments and 85 wild boars and 16 bears were examined in game collection centres.
In 2008, one (1) case of trichinellosis in wild boar was confirmed.

National evaluation of the recent situation, the trends and sources of infection

In 1998, a single positive case was detected in a wild animal. No positive cases were detected in the period 1999-2003. In 2004, trichinellosis was detected in one (1) wild boar, the same as in 2006 and 2008.
In 2005 and 2007, no positive cases were detected in wild game used for human consumption.

Relevance of the findings in animals to findings in foodstuffs and to human cases

In Slovenia, taking into account the findings in animals, the possibility of transmission of the disease to humans is negligible.

Table Trichinella in animals

	Source of information	Sampling unit	Units tested	Total units positive for Trichinella spp.	T. spiralis	Trichinella spp., unspecified
Bears - at game handling establishment - Control and eradication programmes - official sampling	VARS	animal	49	0	0	0
Pigs - at farm - Control and eradication programmes - official sampling [1)]	VARS	animal	795	0	0	0
Pigs - at slaughterhouse - Control and eradication programmes - official sampling	VARS	animal	384400	0	0	0
Solipeds, domestic - horses - at slaughterhouse - Control and eradication programmes - official sampling	VARS	animal	1477	0	0	0
Wild boars - at game handling establishment - Control and eradication programmes - official sampling	VARS	animal	1496	1	0	1

Comments:

[1)] animals slaughtered at tourist farms

2.9 ECHINOCOCCOSIS

2.9.1 General evaluation of the national situation

A. Echinococcus spp. general evaluation

History of the disease and/or infection in the country

According to notifications it is a rare disease in Slovenia.

From 1990 to 2008 from 0 to 8 cases yearly have been reported.
Most of cases in last years were imported from Balkan countries.

Animals
Hydatid cysts are detected from time to time by the compulsory post-mortem examinations at slaughterhouses.

National evaluation of the recent situation, the trends and sources of infection

According to number of notifications a rare zoonosis. Infections are mostly imported. In 2005 8 cases and in 2006 three cases were notified (Incidence 0,15 / 100 000 inhabitants) in 2007 one case (incidence 0,05 / 100 000 inhabitants); in 2008 7 cases.(Higher notified numbers are also due to improvement of clinical and laboratory notifications).

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

Infections are mostly imported.

Recent actions taken to control the zoonoses

Notification system for human cases, identification of source of infection.

2.9.2 Echinococcosis in humans

A. Echinococcus spp. in humans

Reporting system in place for the human cases

Human cases are notifiable by national Law on Infectious Diseases (Official Gazette 69/95, revised 33/2006). Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

Case definition

According to definition of EC /ECDC.

Diagnostic/analytical methods used

Serology (ELISA etc);
ultrasonography,Rtg , CT, MRI ..

Notification system in place

Human cases are notifiable by national Law on Infectious Diseases. Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

History of the disease and/or infection in the country

According to notifications it is a rare disease in Slovenia.

From 1990 to 2007 from 0 to 8 cases yearly have been reported. In 2008 7 cases were recorded.(Higher number of notifications in 2008 are also due to improvement of notification system).
Most of cases in last years were imported from Balkan countries.

Animals
Hydatid cysts are detected from time to time by the compulsory ante- and post-mortem examinations at slaughterhouses.

Results of the investigation

In 2005 8 cases have been reported, in 2006 three in 2007 one, in 2008 7. However, all cases are probably not reported to national data base.

National evaluation of the recent situation, the trends and sources of infection

A rare disease. Most infections are imported.

Relevance as zoonotic disease

Currently not important.

Table Echinococcus in humans - Species/serotype distribution

Echinococcus	Cases	Cases Inc.	Autochthon cases	Autochthon Inc.	Imported cases	Imported Inc.
	7	**0.35**	**0**	**0**	**0**	**0**
E. granulosus	4	0.2				
E. multilocularis	1	0.05				
Echinococcus spp.	2	0.1				

Table Echinococcus in humans - Age distribution

Age Distribution	E. granulosus			E. multilocularis			Echinococcus spp.		
	All	M	F	All	M	F	All	M	F
<1 year	0	0	0	0	0	0	0	0	0
1 to 4 years	0	0	0	0	0	0	0	0	0
5 to 14 years	0	0	0	0	0	0	0	0	0
15 to 24 years	0	0	0	0	0	0	0	0	0
25 to 44 years	0	0	0	0	0	0	0	0	0
45 to 64 years	2	0	2	1	0	1	1	1	0
65 years and older	2	1	1	0	0	0	1	0	1
Age unknown	0	0	0	0	0	0	0	0	0
Total:	4	1	3	1	0	1	2	1	1

2.9.3 Echinococcus in animals

A. E. granulosus in animal

Monitoring system

Sampling strategy

VARS

Monitored are all slaughter animals, farmed and wild game intended for human consumption.

Slaughter animals and farmed game were examined by the official veterinarians at slaughterhouses within the scope of the compulsory veterinary post-mortem examination.

Animals slaughtered on tourist farms (pigs, sheeps, goats, farmed game) were examined by the official veterynarians within the scope of the compulsory veterinary post mortem examination.

Post-mortem examination of wild game shall be conducted on the spot after killing by a qualified person, or by an official veterinarian in the wild game processing house or in wild game collecting centre in cases, where the non-eviscerated wild game carcasses are submitted to the establishment.

An animal constitutes an epidemiological unit.

Frequency of the sampling

Post-mortem examination of all animals and/or meat and organs upon slaughter or killing.

Type of specimen taken

Organs with hydatid cysts

Methods of sampling (description of sampling techniques)

Visual examination of the slaughtered/killed animal and its organs, and palpation of the liver.

Case definition

Echinococcosis is the disease of pigs, small ruminants, bovines, equidae, and some wild game species, in which the presence of hydatid cysts in the liver, the lungs and some other organs is detected, and the causative agent is confirmed by laboratory testing. Using laboratory microscopy specific structures in the hydatid cysts must be observed or the presence of characteristic antibodies must be determined by serology.

Diagnostic/analytical methods used

Macroscopic (visual) examination of organs and laboratory microscopic parasitological identification of the agent.

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.

Persons involved in hunting wild game for placing on the market for human consumption shall have sufficient knowledge in the field of wild game pathology and wild game meat processing so as to be in a position to conduct the preliminary inspection on the spot after killing. All the persons conducting wild game preliminary inspection after killing shall be qualified in compliance with the regulation governing the method of training of hunters in the preliminary inspection of killed wild game.

In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GHP, and record keeping.
Systematic dehelminthisation of dogs along with anti-rabies vaccination.

Control program/mechanisms

The control program/strategies in place

- Registration or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary control
- Identified and registered animals,
- Regular official veterinary checks on holdings,
- Movements of animals accompanied by prescribed documents,
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation,
- Obligatory post-mortem examination after slaughtering/killing-visual, palpation,
- Holder of a tourist farm activity shall at least 48 hours prior to slaughtering animals notify an official veterinarian of the relevant Regional Office of VARS, who shall carry out the ante-mortem examination of animals prior to slaughter and a post-mortem examination of the meat upon slaughter,
- The meat and/or wild game may be placed on the market after the slaughtered/killed animals have visually been inspected by the official veterinarian, or by a hunter acting as the veterinary auxiliary and supervised by the official veterinarian,
- Harmless disposal of organs with hydatid cysts,
- Measures for the detection, prevention and suppression of the disease,

- Measures at the onset of disease in humans.

Measures in case of the positive findings or single cases

Harmless disposal of organs with hydatid cysts.
Measures may be introduced after the public health service has notified the veterinary service of an onset of clinical signs of disease in humans. Depending on the nature of disease, or where necessary, VARS and public health service shall conduct the epidemiological and/or epizootiological investigations. Based on the investigation results, VARS may institute the required veterinary measures in animal husbandry, or other necessary measures.

Notification system in place

At the presence of a contagious disease, or signs giving rise to suspicion that an animal has fallen sick or died of a contagious disease, the animal keeper shall immediately notify thereof the veterinary organisation. A veterinary organisation shall notify of disease the relevant VARS Regional Office in cases only, where the diagnostic test results have confirmed the presence of disease. A report on the occurrence of such diseases shall be drawn up on a monthly basis, by day 10 in the month for the previous month, in the electronic form, via VARS Central Information System (CIS VURS-EPI). At a suspected or confirmed presence of disease, the competent public health services shall be notified as well.

The authorised laboratory submits the diagnostic test results to the relevant Regional Office of VARS, and to the consigner of samples.

The Main Office of VARS collects the results of ante- and post-mortem examinations conducted by the official veterinarians, , and applies them in relation to the diagnoses of diseases communicable to man.

Results of the investigation

1. AT SLAUGHTERHOUSE
In 2008, Echinococcus granulosus was detected in bovine animals in 2 cases (0,001%)out of 131395 bovine animals examined, and in porcine animals in 20 cases (0,005%)out of 384400 porcine animals.
No E. granulosus was detected in the slaughtered small ruminants (out of 11.113) neither in slaughtered horses (out of 1.477).
2. ON TOURIST FARM
On tourist farms were in 2008, 982 animals slaughtered: 623 porcine animals, 172 piglets, 185 lambs and 2 goats(< 1year). Echinococcus granulosus was not detected in the scope of compulsory veterinary post mortem examination by official veterinarian.
3. AT GAME COLLECTION CENTRE
E. granulosus was also not detected in any of the wild animals, whose internal organs were inspected by official veterinarians in the wild game collection

centres.

National evaluation of the recent situation, the trends and sources of infection

In 2008, the number of cases of E.granulosus in bovine animals decreased but in porcine animals the number of cases increased. Although the number of cases of E.granulosus in animals remain relatively low and therefore, the situation is assessed as favourable.

B. Echinococcus spp., unspecified in animal

Monitoring system

Sampling strategy

VARS

Monitored are all slaughter animals, wild and farmed game intended for human consumption.

Slaughter animals and farmed game are examined by the official veterinarians at slaughterhouses within the scope of the compulsory veterinary post-mortem examination.

Animals slaughtered on tourist farms (pigs, sheeps, goats, farmed game) were examined by the official veterynarians within the scope of the compulsory veterinary post mortem examination.

Post-mortem examination of wild game shall be conducted on the spot after killing by a qualified person, or by an official veterinarian in the wild game processing house or in wild game collecting centre in cases, where the non-eviscerated wild game carcasses are submitted to the establishment.

An animal constitutes an epidemiological unit.

Frequency of the sampling

Post-mortem examination of all animals and/or meat and organs upon slaughter or killing.

Type of specimen taken

Other: Visual examination of the slaughtered/killed animal and its organs, and palpation of the liver

Case definition

Detection of hydatid cysts in the liver, the lungs and some other organs of the slaughtered, killed or dead animals (porcines, small ruminants, bovines, equidae, and some wild game species).

Diagnostic/analytical methods used

Macroscopic (visual) examination of organs

Other preventive measures than vaccination in place

Persons, who in carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases.

Persons involved in hunting wild game for placing on the market for human consumption shall have sufficient knowledge in the field of wild game pathology and wild game meat processing so as to be in a position to conduct the preliminary inspection on the spot after killing. All the persons conducting wild game preliminary inspection after killing shall be qualified in compliance with the

regulation governing the method of training of hunters in the preliminary inspection of killed wild game.

In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GHP, and record keeping.
Systematic dehelminthisation of dogs along with anti-rabies vaccination.

Control program/mechanisms

The control program/strategies in place

- Registration and/or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary checks,
- Identified and registered animals,
- Regular official veterinary checks on holdings,
- Movements of animals accompanied by prescribed documents,
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation,
- Holder of a tourist farm activity shall at least 48 hours prior to slaughtering animals notify an official veterinarian of the relevant Regional Office of VARS, who shall carry out the ante-mortem examination of animals prior to slaughter and a post-mortem examination of the meat upon slaughter,
- The meat and/or wild game may be placed on the market after the slaughtered/killed animals have visually been inspected by the official veterinarian, or by a hunter acting as the veterinary auxiliary and supervised by the official veterinarian,
- Measures for the detection, prevention and suppression of the disease.

Measures in case of the positive findings or single cases

Harmless disposal of hydatid cysts.

Notification system in place

In case of disease, the veterinary organisation must notify the Regional Office of VARS, within the area of which the disease has been diagnosed.

The Main Office of VARS collects the results of ante- and post-mortem examinations conducted by the official veterinarians, and applies them in relation to the diagnoses of diseases communicable to man.

Results of the investigation

1. AT SLAUGHTERHOUSE
In 2008, hydatid cysts were detected in 5 bovine animals (0,004 %) out of 131395 bovine animals examined and in 32 porcine animals (0.008 %) out of 384400 porcine animals examined.

No hydatid cysts were detected in slaughtered small ruminants (out of 11.113) and in slaughtered horses (out of 1477).
2. ON TOURIST FARM
On tourist farms were in 2008, 982 animals slaughtered: 623 porcine animals, 172 piglets, 185 lambs and 2 goats(< 1year). Hydatid cysts were not detected in the scope of compulsory veterinary post mortem examination by official veterinarian.
3. AT WILD GAME COLLECTION CENTRE
Hydatid cysts was also not detected in any of the wild animals, whose internal organs were inspected (74 wild animals) by official veterinarians in the wild game collection centres.

National evaluation of the recent situation, the trends and sources of infection

Hydatid cysts are detected from time to time by the compulsatory post-mortem examinations at slaughterhouses and wild game processing houses.

Relevance of the findings in animals to findings in foodstuffs and to human cases

Taking into account the rarity of cases in animal population it may be concluded that human population in general is not at high risk.

Table Echinococcus in animals

	Source of information	Sampling unit	Units tested	Total units positive for Echinococcus spp.	E. granulosus	E. multilocularis	Echinococcus spp., unspecified
Bears - at game handling establishment - Control and eradication programmes - official sampling	VARS	animal	3	0	0	0	0
Cattle (bovine animals) - at slaughterhouse - Control and eradication programmes - official sampling [1)]	VARS	animal	131395	2	2	0	0
Deer - at game handling establishment - Control and eradication programmes - official sampling	VARS	animal	68	0	0	0	0
Goats - at farm	VARS	animal	2	0	0	0	0
Goats - at slaughterhouse - Control and eradication programmes - official sampling	VARS	animal	420	0	0	0	0
Pigs - at farm - Control and eradication programmes - official sampling (official sampling on tourist farms)	VARS	animal	795	0	0	0	0
Pigs - at slaughterhouse - Control and eradication programmes - official sampling [2)]	VARS	animal	384400	20	20	0	0
Sheep - animals under 1 year (lambs) - at farm	VARS	animal	185	0	0	0	0
Sheep - at slaughterhouse (official sampling)	VARS	animal	10693	0	0	0	0
Wild boars - at game handling establishment (official sampling)	VARS	animal	3	0	0	0	0

Comments:

[1)] sample: liver with hydatid cysts

[2)] sample: liver with hydatid cysts

2.10 TOXOPLASMOSIS

2.10.1 General evaluation of the national situation

A. Toxoplasmosis general evaluation

History of the disease and/or infection in the country

Human cases are notifiable by national Law on Infectious Diseases(official Gazette 69/95, revised 33/2006). Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

National evaluation of the recent situation, the trends and sources of infection

The average number of notifications of human cases from 2003 to 2008 was 25 / 100 0000 and varied from 20 to 38 cases. (During that period average incidence was 1,28 / 100 000 inhabitants and variied from 1,0 to 1,9 / 100 000 inhabitants). However not all cases are reported.

Recent actions taken to control the zoonoses

Notification system, screening of pregnant women on routine basis.

2.10.2 Toxoplasmosis in humans

A. Toxoplasmosis in humans

Reporting system in place for the human cases

Human cases are notifiable by national Law on Infectious Diseases. Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

Case definition

According to EC /ECDC.

Diagnostic/analytical methods used

Toxoplasma is identified in laboratory of Medical Faculty in Ljubljana, in Laboratory of Institute for Transfusion medicine and in some laboratories in Institutes of Public Health.

Methods used are:
Serology: detection of IgG, IgM, IgA with EIA (Abott);
avidity of Ig (Biorat Platelia);
isolation;
PCR.

Notification system in place

Human cases are notifiable by national Law on Infectious Diseases (official GAzette 69/95, revised 33/2006). Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since 1977.

History of the disease and/or infection in the country

Number of notifications decreases.

Relevance as zoonotic disease

Important for some population groups- on example pregnant women. Screening during pregnancy is according to Law obligatory and done routinely.

Table Toxoplasma in humans - Species/serotype distribution

Toxoplasma	Cases	Cases Inc.
	20	**0.95**
T. gondii	1	0.05
Toxoplasma spp.	19	0.9

Table Toxoplasma in humans - Age distribution

Age Distribution	T. gondii			Toxoplasma spp.		
	All	M	F	All	M	F
<1 year	0	0	0	0	0	0
1 to 4 years	0	0	0	0	0	0
5 to 14 years	0	0	0	0	0	0
15 to 24 years	0	0	0	2	2	0
25 to 44 years	1	0	1	15	2	13
45 to 64 years	0	0	0	2	0	2
65 years and older	0	0	0	0	0	0
Age unknown	0	0	0	0	0	0
Total:	1	0	1	19	4	15

2.11 RABIES

2.11.1 General evaluation of the national situation

A. Rabies general evaluation

History of the disease and/or infection in the country

From 1946 to 1950 13 human rabies cases-deaths were recorded. Since 1950 no human cases have been notified in Slovenia.

Dog-mediated rabies was eradicated soon after World War II, when compulsory vaccination of dogs against rabies came into force (1947). Since that time all dogs in Slovenia are compulsorily vaccinated against rabies.
Wildlife-mediated rabies has been present since 1973, when the first rabid animal (red fox) was detected in the NW of Slovenia. It had progressively spread trough the territory of the municipalities of Murska Sobota and Lendava, but it has never crossed the natural barrier of the Mura River.
The second wave of sylvatic rabies reached Slovenia in 1979 from Austria. From there it has been spread throughout the country and has persisted until the present.
Due to the inconvenient epizootiological situation regarding rabies in the 1980-ies, the Veterinary Administration decided to implement the oral vaccination of foxes against rabies. In 1988, when the pilot project of the manual distribution of baits (so-called TÃ¼bingen Model with the SAD type) was started, vaccination was conducted in a small part of Slovenia only. Thereafter, two vaccination campaigns (in spring and autumn) were performed as the strategy of pushing rabies from west to east. At that time, 40,000 to 60,000 baits were distributed in each campaign in a rate of 16 to 20 baits per km2. In a few years that followed, the whole territory of Slovenia was covered three times. It was found that if only a certain region was covered at one time, the success rate was poor.
And this was the reason that in 1995, we started with a new strategy to combat rabies. The aircraft distribution of baits has been perfomed twice per year â€“ spring and autumn. The GPS was used to support bait distribution and is still used today as a prevailing strategy. Each year, 640,000 baits were deposited (320,000 per campaign, 20 baits/km2). The follow up investigations such as anti-body and marker investigations, have been carried out. Specific software has been developed in order to analyse data received from the computer (connected to the GPS). The results of new strategy were very encouraging. The number of rabies cases decreased from 1089 (996 foxes) in 1995 to only 6 cases (5 foxes) in 1999. All cases were detected near the border with Croatia.

National evaluation of the recent situation, the trends and sources of infection

No human cases were recorded after 1950.

In 2004, only 2 positive animals (foxes) were detected. Both cases were on the SE border.
In 2005, two rabies cases on the border of vaccination area were detected. Emergency vaccination in 30 km radius around this two outbreaks and taking into account the natural barierrs was carried out. With emergency vaccination we tried to avoid the spread of the disease outside the vaccination area.
The third case was detected in May in municipality Ilirska Bistrica on the border region with Croatia.
In 2006, 1896 (1.645 foxes) animals were tested on rabies. Two rabid foxes were detected near the border with Croatia.

In 2007, 2.075 animals were subjected to tests, whereof 3 animals (all foxes) tested positive for rabies.

Due to the immense infection presure from neighbouring country, the number of rabies cases in 2008 increased to 55 (51 foxes, 2 badgers, 1 horse, 1 dog).

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

Epizootic situation improved since introduction of vaccination of wild animals; no human cases were recorded after 1950.

There is possibility of importation of human cases from endemic countries in spite of fact, that preexposure vaccination is available for foreign travellers.

Recent actions taken to control the zoonoses

Ongoing oral vaccination of foxes twice per year.

2.11.2 Rabies in humans

A. Rabies in humans

Reporting system in place for the human cases

Rabies cases are notifiable by national Law on Infectious Diseases (Offical Gazette 69/95, revised 33/2006). Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia.
No human cases in Slovenia since 1950.

Case definition

According to definition EC /ECDC.

Diagnostic/analytical methods used

Virologic laboratory of Veterinary Faculty in Ljubljana uses methods:

serology (neutralisation test);
isolation on cell cultures, also mouse neuroblasts;

direct imunofluorescent test,
mmunohistochemistry
RT-PCR.

Notification system in place

Rabies cases are notifiable by national Law on Infectious Diseases
(Official Gazette 69/95, revised 33/2006). Medical doctors are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notification since second World War.

History of the disease and/or infection in the country

From 1946 to 1950 13 human rabies cases-deaths were recorded. Since 1950 no human cases have been notified in Slovenia.

There were no human and animal cases from 1950 to 1973.

From 1973 to 1988 rabies spread among wild animals in all regions of Slovenia. In 1988 vaccination campaign of wild animals started and continued in 1995 and last years.

Results of the investigation

No human cases were recorded after 1950.
Epizootic situation improved since the start of vaccination of wild animals.

National evaluation of the recent situation, the trends and sources of infection

Epizootic situation improved since introduction of vaccination of wild animals; no human cases were recorded after 1950.

(There is possibility of importation of human cases in spite of fact, that preexposure vaccination is available for travellers, who travel abroad).

Relevance as zoonotic disease

In Slovenia postexposure prophylaxis of injured persons after bite or injury, caused by unknown wild or domestic animal, is still obligatory by law.

Preexposure prophylaxis is obligatory by law as well for persons, potentially exposed to infection during work.

Preexposure prophylaxis is also available for foreign travellers.

Surveillance of epizootic situation goes on.

2.11.3 Lyssavirus (rabies) in animals

A. Rabies in dogs

Monitoring system

Methods of sampling (description of sampling techniques)

If animals dies, head or whole body must be sent for testing in case of suspicion of disease. Samples are sent to National veterinary institute by veterinarian organisation. For the purposes of rabies confirmation, the direct Immunofluorescence Test (FAT), virus isolation and determination of virus isolates are used.

Diagnostic/analytical methods used

Other: FAT, virus isolation and determination of virus isolates

Vaccination policy

Compulsorily vaccination of all dogs older than 3 months and re-vaccination every 12 month.

Control program/mechanisms

The control program/strategies in place

- identification and registration of dogs
- compulsory vaccination of dogs
- measures in case of suspicion of disease

Notification system in place

According to Rules on animal disease the notification of disease is mandatory. In case of a suspected presence of disease, all the necessary steps shall immediately be taken in order to confirm the
presence of disease, or to reverse the suspicion thereof. Veterinary administration of the RS officially confirm the presence of disease.
When the presence of a rabies is suspected the veterinary organisation shall immediately inform the Regional Office of the VARS of the suspected disease.
The designated laboratory shall immediately inform the Regional Office of the VARS on the results of diagnostic test by telephone and by fax or via email.
The designates laboratory must report the results of diagnostic test via computer database CIS VURS EPI.
In the case of a zoonosis, the official veterinarian shall notify of the suspected presence of disease also the competent public health services.

Results of the investigation

In 2008, 74 dogs were tested. One unvaccinated dog, that came into contact with rabid fox, was positive.

Additional information

Dog-mediated rabies was eradicated soon after World War II, when compulsory

vaccination of dogs against rabies came into force (1947). Since that time all dogs in Slovenia are compulsorily vaccinated against rabies.

Table Rabies in animals

	Source of information	Sampling unit	Units tested	Total units positive for Lyssavirus (rabies)	Unspecified Lyssavirus	Classical rabies virus (genotype 1)	European Bat Lyssavirus - unspecified
Badgers - wild - in total - Control and eradication programmes		animal	25	2	0	2	0
Bats - wild - in total - Monitoring		animal	260	0	0	0	0
Cats - in total - Control and eradication programmes		animal	89	0		0	0
Cattle (bovine animals) - in total - Control and eradication programmes		animal	11	0		0	0
Deer - wild - roe deer - in total - Control and eradication programmes		animal	23	0	0	0	0
Dogs - in total - Control and eradication programmes		animal	74	1	1	0	0
Foxes - wild - in total - Control and eradication programmes		animal	2329	51	0	51	0
Goats - in total - Control and eradication programmes		animal	5	0	0	0	0
Marten - wild - in total - Control and eradication programmes		animal	22	0	0	0	0
Moles - in total - Control and eradication programmes		animal	1	0		0	0
Other animals - in total - Control and eradication programmes		animal	9	0	0	0	0
Polecats - in total - Control and eradication programmes		animal	3	0	0	0	0
Rabbits - in total - Control and eradication programmes		animal	3	0	0	0	0
Sheep - in total - Control and eradication programmes		animal	20	0	0	0	0

Table Rabies in animals

	Source of information	Sampling unit	Units tested	Total units positive for Lyssavirus (rabies)	Unspecified Lyssavirus	Classical rabies virus (genotype 1)	European Bat Lyssavirus - unspecified
Solipeds, domestic - in total - Control and eradication programmes		animal	2	1	1	0	0

2.12 Q-FEVER

2.12.1 General evaluation of the national situation

2.12.2 Q-fever in humans

A. C. burnetii in humans

Reporting system in place for the human cases

Human cases are notifiable by national Law on Infectious Diseases (official Gazette number 69/95, revised 33/2006).
Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. laboratory diagnostics is provided by Microbiological laboratory of Medical faculty in Ljubljana.

Case definition

According to ECDC definition.

Diagnostic/analytical methods used

Indirect immunofluorescence (test FOCUS diagnostics) for the presence of IgG and IgM antibodies to C. burnetii phase I and II antigens.

Notification system in place

Human cases are notifiable by national Law on Infectious Diseases (official Gazette number 69/95, revised 33/2006).
Medical doctors, laboratories are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Laboratory diagnostics is provided by Microbiological laboratory of Medical faculty in Ljubljana.

History of the disease and/or infection in the country

Q fever was a frequent zoonosis after second world war. In last 20 years it was notified rather rarely in Slovenia.
In 2007 a group of 33 veterinary students and two teachers and a group of high veterinary school students contracted a laboratory-confirmed Q fever infection during a training course on a sheep farm in Slovenia in March 2007. From 144 serologically tested, 77 (53%) were positive.

Another small family outbreak of Q fever was detected in 2007 between members of a family, who were visiting and working on a farm in Istra, northern Croatia.

In 2008 no cases were recordered.

Results of the investigation

In outbreak in 2007 from 144 serologically tested students, teachers and workers of a farm, 77 (53%) were positive. The majority (87%)of serologically positive students had also clinical signs and sympotms iof Q fever.

National evaluation of the recent situation, the trends and sources of infection

Recent epidemiological situation is stable, animals are regularly monitored on Q fever.

Relevance as zoonotic disease

Q fever was a rare zoonosis in last years, except in 2007; but it was probably also underestimated. In 2008 no cases were recordered.

2.12.3 Coxiella (Q-fever) in animals

A. C. burnetii in animal

Monitoring system

Sampling strategy

VARS

In compliance with the Rules on the systematic monitoring of animal diseases and vaccination in 2008, blood samples of bovine animals and small ruminants shall be subjected to serology for detecting the presence of Q-fever agent, based on a programme prepared by VARS.

Tests shall be conducted on blood samples taken for Brucella spp. testing. Samples shall be taken by veterinarians of veterinary organisations conducting public veterinary service on the basis of concession.

Frequency of the sampling

Bovine animals:

Blood samples of animals aged more than 24 months, from 299 holdings (1 % prevalence, 95 % probability), shall be subjected to serology for detecting the presence of Q-fever agent.

Small ruminants:

Blood samples of 5 % of small ruminants aged more than 6 months shall be subjected to serology for detecting the presence of Q-fever agent, in compliance with a sampling plan prepared by VARS.

Type of specimen taken

Blood

Methods of sampling (description of sampling techniques)

Blood samples shall be taken aseptically by venepunction. Blood shall be taken from the jugular vein or median caudal vein, and decanted into sterile test tubes. After sampling, the test tubes intended for obtaining the serum shall be kept at room temperature. On finished coagulation, the test tubes shall be refrigerated at +4 C. Blood samples shall be kept chilled during transport (cooling container) and delivered to the testing laboratory within 48 hours of sampling.

Case definition

Identification of IgG antibodies against Coxiella burnetii.

Diagnostic/analytical methods used

Serology: OIE Manual, 5th ed., 2004

ELISA for antibody detection.

Other preventive measures than vaccination in place

Persons, who are carrying out a registered activity of breeding or production come into direct contact with animals, foodstuffs, raw materials, products or

waste, must have thorough knowledge in contagious animal diseases, the prevention thereof and transmissibility to man, and in the regulations governing the protection against contagious diseases. In accordance with legislation, the business operator shall provide for conditions of hygiene in primary production - GAP, GHP, and record keeping.

Control program/mechanisms

The control program/strategies in place

- Registration and/or approval of holdings, establishments, transporters, collection centres and dealers, who are subjected to veterinary checks
- Identified and registrated animals
- Regular official veterinary checks on holdings
- Movements of animals accompanied by prescribed documents
- Veterinary referral form to accompany sick animals and animals coming from holdings with an unverified or suspect epizootiological situation,
- Obligatory notification between veterinary and health service in case of zoonoses occurance.

Measures in case of the positive findings or single cases

Measures may be introduced after the public health service has notified the veterinary service of an onset of clinical signs of disease in humans. Depending on the nature of disease, or where necessary, VARS and public health service shall conduct the epidemiological and/or epizootiological investigations. Based on the investigation results, VARS may institute one or more following measures in animal husbandry:
- providing for potable water that is fit for consumption, water for watering, and feed,
- providing for and maintaining the required conditions of hygiene in animal accommodation facilities, and in other premises and installations intended for keeping animals,
- providing for hygiene at parturition and during milking,
- providing for veterinary order in public places intended for animal assembly, in the means of transport intended for the transport of animals, products, raw materials, foodstuffs, waste, and animal feed, in pens, on pastures and in facilities intended for animal assembly, animal slaughter, and for collecting, treating, processing and storing raw materials, products, foodstuffs, waste, and animal feed,
- providing for food safety and for compliance with the veterinary conditions for their production and circulation,
- preventing the introduction of disease agents into animal accommodation facilities,
- implementing veterinary measures in animal accommodation facilities,
- handling dead animal carcasses and other waste, waste waters, animal faeces, and urine in compliance with the required methods,

- providing for preventive disinfection, disinsectisation and deratisation in facilities, on public surfaces and in the means of transport,
- other recovery measures

Notification system in place

At the presence of a contagious disease, or signs giving rise to suspicion that an animal has fallen sick or died of a contagious disease, the animal keeper shall immediately notify thereof the veterinary organisation. A veterinary organisation shall notify of disease the relevant VARS Regional Office in cases only, where the diagnostic test results have confirmed the presence of disease. A report on the occurrence of such diseases shall be drawn up on a monthly basis, by day 10 in the month for the previous month, in the electronic form, via VARS Central Information System (CIS VURS-EPI). At a suspected or confirmed presence of disease, the competent public health services shall be notified as well.

Results of the investigation

CATTLE
Sampling was conducted on 233 holdings where 1.400 animals were sampled.
Antibodies against Coxiella burnetii were identified in 95 animals on 16 holdings.
SHEEP/GOATS
Sampling was conducted on 134 holdings where 4.817 animals were sampled.
Antibodies against Coxiella burnetii were identified in 53 animals on 10 holdings.
Suspected cases: two (2) animals on two (2) holdings.

Table Coxiella burnetii (Q fever) in animals

	Source of information	Sampling unit	Units tested	Total units positive for Coxiella (Q-fever)	C. burnetii
Cattle (bovine animals) - - blood - Monitoring - official sampling	VARS	animal	1400	95	95
Sheep and goats - - blood - Monitoring - official sampling	VARS	animal	4817	53	53

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1 ENTEROCOCCUS, NON-PATHOGENIC

3.1.1 General evaluation of the national situation

3.2 ESCHERICHIA COLI, NON-PATHOGENIC

3.2.1 General evaluation of the national situation

A. Escherichia coli general evaluation

History of the disease and/or infection in the country

According to Law on infectious diseases (Official Gazette 69/95) E.coli infections are notifiable. Doctors and laboratories are obliged to notify them in three days after diagnosis. The number of all E.coli infections in 2005 was 117, 22 from them were identified as other E.coli infections. In 2006 there were 121 notifications, among those 25 were diagnosed as other E.coli infections; in 2007 117 notifications, 22 among them were identified as other e.coli and in year 2008 113. The proportion or incidence of nonpathogenic E.coli is not clear, because most E.coli notifications do not have serotype data. most notified e.coli cases are pathogenic. May be nonpathogenic E.coli are diganosed as "concomitant" bacteria and are probably not notified at all.

National evaluation of the recent situation, the trends and sources of infection

The number of all E.coli infections in 2007 and 2008 remained almost the same as in year 2006; and is about 33% smaller than 10- years aerage.

Recent actions taken to control the zoonoses

Improving diagnostics of human E.coli cases.

3.2.2 Escherichia coli, non-pathogenic in foodstuffs

A. E. coli in food

Monitoring system

Sampling strategy

HIRS
Monitoring at retail
Annual monitoring programme was prepared with respect to potential presence of zoonotic agent in specific food and to the results of programme/controls carried out in the previous year.
The majority of samples were taken in cities with 10000 inhabitants or more and number of samples taken was proportional with the population in the region.
Sampling was carried out by the health inspectors.

Programme:
- RTE deli dishes (sandwiches, salads, precut sausages, precut fruits and vegetables, etc.): 600 samples/year;
- confectionary products: 300 samples/year

Frequency of the sampling

Sampling was distributed evenly throughout the months: January - December.

Methods of sampling (description of sampling techniques)

Samples were taken in one unit (n=1). If a sample was not prepacked, a sample weighing 300-400 g was taken by sterile instrument and stored in a sterile bag or other sterile container. Samples had to be delivered to the laboratory in the shortest time possible. The period of time elapsing from sampling to analysis shall by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

A sample in which non-patogenic Escherichia coli (> 100 cfu/g) was detected.

Diagnostic/analytical methods used

Bacteriological method: ISO 16649-2:2001

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

Registration of establishments and official control.

Measures in case of the positive findings or single cases

Informing the owner of the sample and necessary enforcement action.

Results of the investigation

HIRS

Monitoring at retail

In 2008, 300 samples of confectionary products and 600 samples of RTE deli dishes were taken in restaurants, at retail and catering.

Non-patogenic Escherichia coli (> 100 cfu/g) was detected in 9 samples (1 samples of confectionary products and 8 samples of RTE deli dishes.

Out of all 900 samples taken, 0,9 % were positive on presence of non-patogenic Escherichia coli (> 100 cfu/g).

3.2.3 Antimicrobial resistance in Escherichia coli, non-pathogenic

A. Antimicrobial resistance of E.coli in food

Sampling strategy used in monitoring

Frequency of the sampling

Isolates were obtained within annual monitoring programme.
Sampling strategy used in monitoring and frequency of the sampling were described in Monitoring system for non-patogenic Escherichia coli in food.

Methods of sampling (description of sampling techniques)

See Monitoring system for non-patogenic Escherichia coli in food.

Procedures for the selection of isolates for antimicrobial testing

3 isolates of non-patogenic Escherichia coli derived from monitoring programme were taken for antimicrobial testing.
Due to lack of isolates from monitoring programme, isolates from samples (of the same food groups) taken for internal controls of food business operators were tested for antimicrobial susceptibility.

Methods used for collecting data

Isolates were tested in one of delegated laboratories for analyses of official samples.
Resistance data was reported to HIRS.

Laboratory methodology used for identification of the microbial isolates

Bacteriological method: ISO 16649-2:2001

Laboratory used for detection for resistance

Antimicrobials included in monitoring

Aminoglycosides: streptomycin, gentamycin, kanamycin
Amphenicols: chloramphenicol
Beta-lactamic: ampicillin, amoxycillin/clavulanic acid
Cephalosporins: cefotaxime, cephalothin, ceftazidime
Fluoroquinolones: ciprofloxacin
Quinolones: nalidixic acid
Sulfonamides: sulfonamide, trimethoprim, trimethoprim/sulfamethoxazole
Tetracyclines: tetracycline

Breakpoints used in testing

Agar Diffusions method according to CLSI (Clinical Laboratory Standard Institute).

Control program/mechanisms

Recent actions taken to control the zoonoses

Introduced monitoring.

Notification system in place

Delegated laboratory reports to HIRS at least once a year.

Results of the investigation

Out of 3 isolates tested for antimicrobial susceptibility 1 isolate was intermediate resistant to cephalothin and 1 isolate was intermediate resistant to streptomycin.

Due to lack of isolates from monitoring programme, isolates from samples (of the same food groups) taken for internal controls of food business operators were tested for antimicrobial susceptibility. For those samples there is no data regarding frequency and method of sampling.
Results of antimicrobial susceptibility of those isolates are follows:

Out of 36 isolates tested 5 isolates were resistant to ampicillin, 5 isolates to amoxycillin/clavulanic acid, 4 isolates to sulfonamide, 3 isolates to streptomycin, 3 isolates to tetracycline, 3 isolates to trimethoprim, 2 to nalidixic acid, 2 to trimethoprim/sulfamethoxazole and 1 to chloramphenicol.
1 isolate was resistant to 6 antimicrobials, 1 isolate to 5 antimicrobials, 3 isolates were resistant to 4 antimicrobials, 2 isolates were resistant to 2 antimicrobials and 5 isolates to 1 antimicrobial.

B. Antimicrobial resistance of E.coli in animal

Sampling strategy used in monitoring

Type of specimen taken

From different monitoring programs strains of E. coli were taken for antimicrobial susceptibility testing: 40 from cattle, 30 from pigs, 40 from frowl and 3 from turkeys.

Procedures for the selection of isolates for antimicrobial testing

Random selection from different monitoring samples.

Laboratory methodology used for identification of the microbial isolates

Disc diffusion test according to CLSI.

Laboratory used for detection for resistance

Antimicrobials included in monitoring

Aminoglycosides: Streptomycin, Kanamycin, Gentamycin, Neomycin
Amphenicols: Chloramphenicol, fluorphenicol
Beta-lactamic: Ampicillin, Amoxicillin, Amoxicillin/Clavulanic acid
Cephalosporins: Cephotaxim,Ceftazidim, Cephalotin, Cefpodoxim
Quinolones: Nalidixinic acid
Fluoroquinolones: Ciprofloxacin, Enrofloxacin
Sulphonamides: Sulfonamides
Trimethoprim
Trimethoprim + Sulfonamide
Tetracyclines: Tetracycline

Breakpoints used in testing

According to CLSI and producer's instructions

Results of the investigation

Among 40 strains from cattle 88% were fully sensitive. Only 2 strains were resistant to more than 4 antimicrobials, one to three and 2 to one. The highest (3 strains) was resisttance to cephalotin, Sulfonamide and Tetracyclin.
Among 30 strains from pigs only 4 (13%) were fully sensitive. Half (50%) of the strains were resistant to more than 4 antimicrobials. The highest (20 strains) was resistance to Streptomycin and Tetracyclin, followed by (16 strains) Amoxicillin and Ampicillin, and ((14 strains) Sulfonamide and Trimethopim.
Among 40 strains from fowl 7 (18%) were fully sensitive and 10 (25%) were resistant to more than four antimicrobials. The highest (22 strains) was resistance to Amoxicillin, followed ba (22 strains) Ampicillin and Nalidixic acid.
Among 3 strains from turkeys one was fully susceptible, one was resistant to one and one to three antimicrobials.

National evaluation of the recent situation, the trends and sources of infection

High resistance of E. coli strains from pigs and fowl presents a considerable risk for transmision of resistant genes from non-pathogenic to pathogenic strains of E. coli or even other species. In cattle strains the resistance seems moderate and for turkeys we do not have enough data for evaluation.

Relevance of the findings in animals to findings in foodstuffs and to human cases

The high antimicrobial resistance of E. coli strains indicates the use of antimicrobials in food producing animals. Special care should be taken to use antimicrobials prudently and in accordance with principles of their rational use. When possible the use of antimicrobials shoud be avoided and other measures to control bacterial infectious diseases like vaccinations and sanitary measures should be taken. This is the only way to prevent the transmission of resistant genes into pathogenic bacteria and their spread into human population.

Table Antimicrobial susceptibility testing of E. coli in Cattle (bovine animals) - quantitative data [Diffusion method]

E. coli		Cattle (bovine animals)																									
Isolates out of a monitoring program (yes/no)		yes																									
Number of isolates available in the laboratory		40																									
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	40	0															1	4	5	8	13	8	1		
	Kanamycin	13	40	1	1														1	6	11	14	7				
	Neomycin	12	40	1			1									1		5	12	13	7			1			
	Streptomycin	11	40	2	1		1							3	10	11	12	1									
Amphenicols	Chloramphenicol	12	40	1	1													1	1	3	4	5	11	6	4	3	
	Florfenicol	16	40	0													1	3	1	4	9	5	7	6	1	1	1
Cephalosporins	Cefotaxim	14	38	0																		1					
	Cefpodoxime	17	40	0																				2	2	7	10
	Ceftazidim	14	40	0																							1
	Cephalothin	14	40	3					1			1	1	1	1	10	6	7	7	4		1					
Fluoroquinolones	Ciprofloxacin	15	40	0																		1					
	Enrofloxacin	16	40	1											1										1		1
Penicillins	Amoxicillin	13	39	2	2								2	6	5	5	5	6	2	2	1	2	1				
	Amoxicillin / Clavulanic acid	13	40	0													1		6	6	10	9	4	1	2	1	
	Ampicillin	13	40	2	2								1	2	4	8	6	4	5	3	2	1	2				
Quinolones	Nalidixic acid	13	40	2	2																1	2	12	5	7	3	5
Sulfonamides	Sulfonamide	12	40	3	3																2	2	1	6	1	5	7
Tetracyclines	Tetracyclin	11	40	3	3															3	4	5	10	8	5	1	1
Trimethoprim	Trimethoprim	10	40	1	1																	2	1	3	4	5	7
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	40	1	1																1				1	2	

Table Antimicrobial susceptibility testing of E. coli in Cattle (bovine animals) - quantitative data [Diffusion method]

E. coli		Cattle (bovine animals)						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		40						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin			1				
Amphenicols	Chloramphenicol	1						
	Florfenicol		1					
Cephalosporins	Cefotaxim			1	2	3	5	26
	Cefpodoxime	8	1	5	4			1
	Ceftazidim	2	9	4	12	7	4	1
	Cephalothin							
Fluoroquinolones	Ciprofloxacin	1		2	3	6	8	19
	Enrofloxacin	3	2	4	7	5	6	10
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid							
	Ampicillin							
Quinolones	Nalidixic acid	2	1					
Sulfonamides	Sulfonamide	3	1	6	1	2		
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim	11	1	2	2			1
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	9	6	7	10	1	1	1

Table Antimicrobial susceptibility testing of E. coli in Cattle (bovine animals) - quantitative data [Diffusion method]

Footnote:

Only 38 strains were tested for Cefotaxim and 39 for Amoxicillin.

Table Antimicrobial susceptibility testing of E. coli in Pigs - quantitative data [Diffusion method]

E. coli		Pigs																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		30																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	30	2	1	1													1	1	7	6	5	6	1	1	
	Kanamycin	13	29	2	2												1	2	1	5	4	7	3	2	1		1
	Neomycin	12	30	0													2	8	6	7	5	2					
	Streptomycin	11	30	20	15	2			3			1		1	1	4	3										
Amphenicols	Chloramphenicol	12	30	6	5		1										1	2		4	4	4	2	4	1	1	1
	Florfenicol	16	30	7	5						1			1			2	3	3	1	3	4	3	3			1
Cephalosporins	Cefotaxim	14	30	1	1																						
	Cefpodoxime	17	30	1	1															1				2	3	3	3
	Ceftazidim	14	30	0																1						1	1
	Cephalothin	14	30	3	2							1		3	6	2	5	2	1	3	3	2					
Fluoroquinolones	Ciprofloxacin	15	30	2				1		1									1			1	1	1	2	1	
	Enrofloxacin	16	30	2	2											1					1	2	1			3	
Penicillins	Amoxicillin	13	30	16	16									3			3	2	3	2		1					
	Amoxicillin / Clavulanic acid	13	30	1								1		1		3	4	4	4	2	4	1	3	1	1		
	Ampicillin	13	30	16	16									2	2	1	1	1		4		3					
Quinolones	Nalidixic acid	13	30	8	8										1					1	1	3	5	6	1	2	
Sulfonamides	Sulfonamide	12	30	14	14										1						1			2	5	1	1
Tetracyclines	Tetracyclin	11	30	20	20														2		1	1	4	1			
Trimethoprim	Trimethoprim	10	30	14	14																		2	2	3	5	
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	30	9	9										1	4	1	1			1					2	3

Table Antimicrobial susceptibility testing of E. coli in Pigs - quantitative data [Diffusion method]

E. coli		Pigs						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		30						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	Cefotaxim		1	2	1	3	4	18
	Cefpodoxime	3	8	4	1			1
	Ceftazidim	2	4	7	5	6	2	1
	Cephalothin							
Fluoroquinolones	Ciprofloxacin		1		3	1	1	15
	Enrofloxacin	1	2	1	6	4	2	4
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid				1			
	Ampicillin							
Quinolones	Nalidixic acid		1	1				
Sulfonamides	Sulfonamide	4	1					
Tetracyclines	Tetracyclin	1						
Trimethoprim	Trimethoprim				2	2		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	3	3	1	1			

Table Antimicrobial susceptibility testing of E. coli in Pigs - quantitative data [Diffusion method]

Footnote:

Pnly 29 strains were tested for Kanamycin.

Table Antimicrobial susceptibility testing of E. coli in Turkeys - quantitative data [Diffusion method]

E. coli		Turkeys																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		3																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	3	0																2	1						
	Kanamycin	13	3	0															2	1							
	Neomycin	12	3	0															2	1							
	Streptomycin	11	3	0										3													
Amphenicols	Chloramphenicol	12	3	0														1			1		1				
	Florfenicol	16	3	1											1					1	1						
Cephalosporins	Cefotaxim	14	3	0																							
	Cefpodoxime	17	3	0																				2			
	Ceftazidim	14	3	0																							1
	Cephalothin	14	3	1									1			1						1					
Fluoroquinolones	Ciprofloxacin	15	3	0																			1				
	Enrofloxacin	16	3	0														1									
Penicillins	Amoxicillin	13	3	0									2					1									
	Amoxicillin / Clavulanic acid	13	3	0														2				1					
	Ampicillin	13	3	0									1			1			1								
Quinolones	Nalidixic acid	13	3	1	1																	1			1		
Sulfonamides	Sulfonamide	12	3	0																		1			1		
Tetracyclines	Tetracyclin	11	3	1	1														1			1					
Trimethoprim	Trimethoprim	10	3	0																			1	1	1		
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	3	0																							1

Table Antimicrobial susceptibility testing of E. coli in Turkeys - quantitative data [Diffusion method]

E. coli		Turkeys						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		3						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	Cefotaxim		1				1	1
	Cefpodoxime		1					
	Ceftazidim		2					
	Cephalothin							
Fluoroquinolones	Ciprofloxacin			1			1	
	Enrofloxacin	1	1					
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid							
	Ampicillin							
Quinolones	Nalidixic acid							
Sulfonamides	Sulfonamide	1						
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim							
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	2						

Table Antimicrobial susceptibility testing of E. coli in Gallus gallus (fowl) - quantitative data [Diffusion method]

E. coli		Gallus gallus (fowl)																								
Isolates out of a monitoring program (yes/no)		yes																								
Number of isolates available in the laboratory		40																								
Antimicrobials:		break points	N	n	<=6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28
Aminoglycosides	Gentamicin	12	39	0																4	10	7	12	4	2		
	Kanamycin	13	39	0															2	4	7	15	5	5		1	
	Neomycin	12	40	0														1	6	17	12	3	1				
	Streptomycin	11	40	4	3		1				1			8	7	10	5	3	2								
Amphenicols	Chloramphenicol	12	40	0														1	5	3	6	4	7	4	4	2	4
	Florfenicol	16	40	0													3	5	6	5	7	4	5	1	1	3	
Cephalosporins	Cefotaxim	14	40	0												1			1			1					
	Cefpodoxime	17	40	3	2				1														1	1	3	10	4
	Ceftazidim	14	40	0													1	1									1
	Cephalothin	14	40	5	2							1	2	4	9	6	5	4	3	1		2					1
Fluoroquinolones	Ciprofloxacin	15	39	4	1				2		1								2	1		3		2	1	3	1
	Enrofloxacin	16	40	7	3	1							2	1		3	1			2	3		1	2	2		2
Penicillins	Amoxicillin	13	40	24	22						1	1	1	2	3	2	1	1	1	2	1	1		1			
	Amoxicillin / Clavulanic acid	13	40	2			1	1							3	4	7	6	2	1	4	4	1	2	3		1
	Ampicillin	13	40	22	22								2	2	3		6		1	3					1		
Quinolones	Nalidixic acid	13	40	22	18	2	1	1													3	2	3	1	5	2	1
Sulfonamides	Sulfonamide	12	40	9	9																		4	3	2	5	2
Tetracyclines	Tetracyclin	11	40	12	8	1	1	1	1									1		2	3	5	7	4	3	2	1
Trimethoprim	Trimethoprim	10	40	9	9															1		1	1	4	3	6	5
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	10	40	8	8											1				1					1		4

Table Antimicrobial susceptibility testing of E. coli in Gallus gallus (fowl) - quantitative data [Diffusion method]

E. coli		Gallus gallus (fowl)						
Isolates out of a monitoring program (yes/no)		yes						
Number of isolates available in the laboratory		40						
Antimicrobials:		29	30	31	32	33	34	>=35
Aminoglycosides	Gentamicin							
	Kanamycin							
	Neomycin							
	Streptomycin							
Amphenicols	Chloramphenicol							
	Florfenicol							
Cephalosporins	Cefotaxim			2	1	3	6	25
	Cefpodoxime	5	9	1	2		1	
	Ceftazidim	2	6	13	8	5	2	1
	Cephalothin							
Fluoroquinolones	Ciprofloxacin	3	1	3	3	1	4	7
	Enrofloxacin	1	5	3	3	2	2	1
Penicillins	Amoxicillin							
	Amoxicillin / Clavulanic acid							
	Ampicillin							
Quinolones	Nalidixic acid	1						
Sulfonamides	Sulfonamide	3	2	6	3	1		
Tetracyclines	Tetracyclin							
Trimethoprim	Trimethoprim	3	4	3				
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	5	3	5	7	2	2	1

Table Antimicrobial susceptibility testing of E. coli in Gallus gallus (fowl) - quantitative data [Diffusion method]

Footnote:

Only 39 strains were tested for Ciprofloxacin, Gentamicin and Kanamycin.

Table Antimicrobial susceptibility testing of E. coli in animals

E. coli		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys	
Isolates out of a monitoring program (yes/no)		yes		yes		yes		yes	
Number of isolates available in the laboratory		40		30		40		3	
Antimicrobials:		N	n	N	n	N	n	N	n
Aminoglycosides	Gentamicin	40	0	30	2	39	0	3	0
	Kanamycin	40	1	29	2	39	0	3	0
	Neomycin	40	1	30	0	40	0	3	0
	Streptomycin	40	2	30	20	40	4	3	0
Amphenicols	Chloramphenicol	40	1	30	6	40	0	3	0
	Florfenicol	40	0	30	7	40	0	3	1
Cephalosporins	Cefotaxim	38	0	30	1	40	0	3	0
	Cefpodoxime	40	0	30	1	39	3	3	0
	Ceftazidim	40	0	30	1	40	0	3	0
	Cephalothin	40	3	30	3	40	5	3	1
Fluoroquinolones	Ciprofloxacin	40	0	30	2	40	4	3	0
	Enrofloxacin	40	1	30	2	40	7	3	0
Fully sensitive	Fully sensitive	40	35	30	4	40	7	3	1
Penicillins	Amoxicillin	39	2	30	16	40	24	3	0
	Amoxicillin / Clavulanic acid	40	0	30	1	40	2	3	0
	Ampicillin	40	2	30	16	40	22	3	0
Quinolones	Nalidixic acid	40	2	30	8	40	22	3	1
Resistant to 1 antimicrobial	Resistant to 1 antimicrobial	40	2	30	2	40	6	3	1
Resistant to 2 antimicrobials	Resistant to 2 antimicrobials			30	4	40	4		
Resistant to 3 antimicrobials	Resistant to 3 antimicrobials	40	1	30	3	40	6	3	1

Table Antimicrobial susceptibility testing of E. coli in animals

E. coli		Cattle (bovine animals)		Pigs		Gallus gallus (fowl)		Turkeys	
Isolates out of a monitoring program (yes/no)		yes		yes		yes		yes	
Number of isolates available in the laboratory		40		30		40		3	
Antimicrobials:		N	n	N	n	N	n	N	n
Resistant to 4 antimicrobials	Resistant to 4 antimicrobials			30	2	40	4		
Resistant to >4 antimicrobials	Resistant to >4 antimicrobials	40	2	30	15	40	10		
Sulfonamides	Sulfonamide	40	3	30	14	40	9	3	0
Tetracyclines	Tetracyclin	40	3	30	20	40	12	3	1
Trimethoprim	Trimethoprim	40	1	30	14	40	9	3	0
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides	40	1	30	9	40	8	3	0

Table Breakpoints used for antimicrobial susceptibility testing

Test Method Used	
Disc diffusion	◉
Agar dilution	○
Broth dilution	○
E-test	○

Standards used for testing
NCCLS CLSI_M_31-A_3 producer_instructions

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Aminoglycosides	**Gentamicin**							10	15		12
	Kanamycin							30	18		13
	Neomycin							30	17		12
	Streptomycin							10	15		11
Amphenicols	**Chloramphenicol**							30	18		12
	Florfenicol							30	20		16
Cephalosporins	**Cefotaxim**							30	23		14
	Cefpodoxime							10	21		17
	Ceftazidim							30	18		14
	Cephalothin							30	18		14
Fluoroquinolones	**Ciprofloxacin**							5	21		15
	Enrofloxacin							5	23		16
Penicillins	**Amoxicillin**							10	17		13
	Amoxicillin / Clavulanic acid							30	18		13

Table Breakpoints used for antimicrobial susceptibility testing

			Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		Disk content	Breakpoint Zone diameter (mm)		
		Standard for breakpoint	Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Penicillins	Ampicillin							10	17		13
Quinolones	Nalidixic acid							30	19		13
Sulfonamides	Sulfonamide							300	17		12
Tetracyclines	Tetracyclin							30	15		11
Trimethoprim	Trimethoprim							5	16		10
Trimethoprim + sulfonamides	Trimethoprim + sulfonamides							25	16		10

Footnote:

For Amoxicillin and Florfenicol we used the breakpoints of producer's instructions.

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 HISTAMINE

4.1.1 General evaluation of the national situation

A. Histamine General evaluation

History of the disease and/or infection in the country

Human cases of microbial food intoxication are notifiable by National Law on infectious diseases (Official Gazette number 69/1995, revised 33/2006).
Medical doctors, laboratories are obliged to notify cases to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia.

Histamin intoxication is according to Law on infectiou diseases (Official Gazette number 69/1995) not notifiable. (It could be notified as gastroenterocolitis acuta, without identified agent). Most patients with symptoms of histamin intoxication, which is not severe, do not seek medical help. Even if they go to doctor, cases are mostly not notified.Therefore the disease is underreported.

From 1980 on to January 2005 less than 15 cases of histamin intoxication were officially recorded in Slovenia. In 2007 a small outbreak (2 persons went ill) of histamin intoxication was recorded in coast region of Slovenia.

Cases were intoxicated by eating fishes in sandwich, on pizza, noodles with tuna fish and tomato sauce, fried small fishes.

In 2008 no cases were recordered.

National evaluation of the recent situation, the trends and sources of infection

The last sporadic case of histamin poisoning was recorded in 2002. The patient ate tunna salad and went ill one hour later.

In 2007 a small outbreak of histamin intoxication was recorded. Two persons ate small, fried fishes in a restaurant. 15 minutes after meal they went ill with nausea, headache, red rash, mainly on face, but also on body. They seeked medical help.

Representative of health authority and regional institute of public health inspected the premises of restaurant/ kitchen. Hygienic conditions were bad, HACCP was not implemented at all. Food samples were taken. In a sample of small fishes histamin was identified (2970 mg histamin / kilogram, HM006 /HPLC

laboratory method). The concentration of histamin was much higher than "normal" concentration (from zero to 200 mg/ kg; according to EU decision number 2073/2005 from 15.nov 2005).
(The incriminated fishes were probably stored at room, summer temperature long before they were fried).

In 2008 no cases were recordered.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

The source of infection was mostly canned fish: tuna fish, mackerel, fried small fishes-sardines.

Recent actions taken to control the hazard

Sampling of food in restaurants, in food shops, education of food workers against:
storing fishes, opened canned fish on room temperature;
using large amounts of fish instead of opening smaller canns, containing fish;
measuring temperature in refrigerators, where fishes are kept (implementation of HACCP system)

Suggestions to the Community for the actions to be taken

Occasional sampling of canned fish for laboratory evaluation of histamin content?

4.1.2 Histamine in foodstuffs

A. Histamine in foodstuffs

Monitoring system

Sampling strategy

VARS

Histamine sampling of fishery products shall be conducted at fish markets.
The numbers of samples of fishery products to be taken at establishments had been defined in advance and for every particular VARS Regional Office separately.

Frequency of the sampling

VARS

Sampling was distributed evenly throughout the months: April - November. The number of samples of fishery products to be taken at establishments had been defined in advance and for every particular VARS Regional Office separately.

Type of specimen taken

Other: Fish (fresh)

Methods of sampling (description of sampling techniques)

VARS

A single sample of a fishery product shall be composed of nine units (n=9), and every unit shall weigh at least 200 g. The sampling included the fish of the following families: Clupeidae, Engraulidae and Scombridae.

Definition of positive finding

Definition of positive finding as written in the Regulation 2073/2005.

Diagnostic/analytical methods used

HLPC

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

VARS

- Registration and/or approval of establishments subjected to veterinary controls

- Identification of animal products and their traceability
- Veterinary controls in establishments

Notification system in place

Whenever zoonotic agent - Histamin was detected in samples taken, relevant authorities was informed.

Results of the investigation

VARS

Monitoring at the establishments

In 2008, 20 samples of fresh fishery products were taken. Histamin was detected in one(1) sample.

Table Histamine in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units in non-conformity	<= 100 mg/kg	>100 - <= 200 mg/kg	>200 - <= 400 mg/kg	> 400 mg/kg
Fish - Fishery products from fish species associated with a high amount of histidine - not enzyme maturated - at processing plant - Monitoring - official sampling (n=9)	VARS	single	9 x 200g	20	1	0	0	1	0

4.2 ENTEROBACTER SAKAZAKII

4.2.1 General evaluation of the national situation

A. Enterobacter sakazakii general evaluation

History of the disease and/or infection in the country

Infections with Enterobacter sakazakii are according to our Law on infectious diseases (Official Gazette 69/95, revised 33/2006) not notifiable. Therefore we do not have any offcial notifications.

National evaluation of the recent situation, the trends and sources of infection

Unknown.

Recent actions taken to control the hazard

Law on infectious diseases from 1995 will be modified.

Enterobacter sakazakii infections could be added to the list of obligatory notifiable diseases.

4.2.2 Enterobacter sakazakii in foodstuffs

A. Enterobacter sakazakii in foodstuffs

Monitoring system

Sampling strategy

HIRS is executing monitoring at wholesale level, where samples of different producers are taken.

Programme:
Dried infant formulae: 10 samples/year

Frequency of the sampling

Samples are taken twice a year.

Methods of sampling (description of sampling techniques)

Samples of dried infant formulae were taken randomly from the available part of the consignment. A single sample was composed of ten prepacked units (n=10).

Definition of positive finding

Presence of E.sakazakii in 10g.

Diagnostic/analytical methods used

Bacteriological method: ISO/TS 22964:2006

Preventive measures in place

GHP, HACCP

Control program/mechanisms

The control program/strategies in place

Registration of establishments and official control.

Measures in case of the positive findings or single cases

Recall from the market, inspection of distributor, informing competent authority in the country of producer and other countries flagged for action through RASFF system.

Notification system in place

Whenever Enterobacter sakazakii is detected in sample taken, relevant authorities must be informed with the result.

Results of the investigation

In 2008, 10 samples of dried infant formulae were taken. Enterobacter sakazakii was not detected.

Table Enterobacter sakazakii in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Enterobacter sakazakii	E. sakazakii
Infant formula - dried - at retail - Monitoring - official sampling (n=10) [1)]	HIRS	single	10 g	10	0	0

Comments:

[1)] sampling at wholesale level

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

A. Staphylococcal enterotoxins general evaluation

History of the disease and/or infection in the country

Human cases of Staphylococcal intoxication are notifiable by National Law on Infectious Diseases (official Gazette number 69/1995, revised 33/2006). Notifiable are sporadic cases and outbreaks as well.
Medical doctors are obliged to notify cases on daily basis to local institutes of public health. Local institutes of public health notify disease to Institute of Public Health of R. Slovenia. Notified for more than 30 years.

From 2003 to 2008 the average number of sporadic notified cases of staphylococcal food poisoning ranged from 0 to 24) yearly.

During the same period number of notified outbreaks varied from zero to 5 yearly (Places of intoxication were: schools, school camps, restaurants, family outbreaks. In 2006 we notified three outbreaks of staphylococcal poisoning (two in school camps and one in a restaurant) in 2007 there was no outbreak in 2008 one outbreak in factory canteen.

National evaluation of the recent situation, the trends and sources of infection

In 2008 an outbreak of staphyloccocal food poisonoing was detected in canteen.40 people, who ate lunch and or dinner, went ill. Tha causative agent was Staphylococal aureus, etnerotoxin C.

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases

Sources of infection from outbreaks are different-from human carriers to milk/milk products, potato salad, buckwheat porrdige etc.

Recent actions taken to control the hazard

Control of implementation of HACCP system mainly in smaller public kitchens, (inns) where most problems occur.
Education of food workers about Staphyloccocus spp.infections.

4.3.2 Staphylococcal enterotoxins in foodstuffs

A. Staphylococcal enterotoxins in foodstuffs

Monitoring system

Sampling strategy

VARS

Sampling at processing

Sampling of dairy products for Salmonella spp. shall be conducted in the establishments, which have been registered and/or approved for the production of milk and dairy products.

In cases where business operators produce dairy products using the different types of milk (raw, thermally treated, pasteurised), the dairy products obtained from the raw milk and thermally treated milk shall have precedence in sampling.

HIRS

Sampling at retail

Annual sampling programe (as part of offical sampling programme but not as part of official zoonnoses monitoring programe) was prepared with respect to potential presence of the toxine in specific food.

The majority of samples were taken in cities with 10000 inhabitants or more and number of samples taken was proportional with the population in the region. Samples were taken at the retail level. Sampling was carried out by the health inspectors.

Programme:

- RTE deli dishes with long shelf life (sausages, liver pates, minced lards, greaves,brawns, different spreads, etc.): 40 samples/year;
- RTE deli dishes with heat-treated poultry meat (salads, sandwiches, precut sausages, spreads and pates, etc): 100 samples/year
- ice cream: 100 samples/year;
- prepacked cheeses: 100 samples/year

Frequency of the sampling

VARS

Sampling was distributed evenly throughout the months: April - November.

The numbers of samples of dairy products to be taken at establishments had been defined in advance and for every particular VARS Regional Office separately.

HIRS

Sampling was distributed evenly throughout the months: January - December.

Type of specimen taken

VARS: Dairy products

Methods of sampling (description of sampling techniques)

VARS

A single sample of a dairy product shall be composed of five units (n=5), and every unit shall weigh at least 200 g.

Samples were delivered to the laboratory in the shortest time possible, as a rule, immediately after sampling (in 24 hours after sampling at the latest). In time between sampling and delivery to the laboratory, samples shall be kept in cool place.

HIRS

A single sample of RTE deli dishes with long shelf life and prepacked cheeses were composed of five units (n=5), and every unit weighed at least 300 g. Samples of others food groups were taken in one unit (n=1).

If a sample was not prepacked, a sample weighing 300-400 g was taken by sterile instrument and stored in a sterile bag or other sterile container. Samples had to be delivered to the laboratory in the shortest time possible. The period of time elapsing from sampling to analysis shall by no means exceed 24 hours. The temperature during storage and transport should not exceed + 4°C.

Definition of positive finding

VARS

A sample in which Staphylococcal enterotoxin was found in 25g.

HIRS

A sample in which Staphylococcal enterotoxin was found in 25g.

Diagnostic/analytical methods used

VARS

ELISA - TRANSIA

HIRS

VIDAS (SET 2)

Preventive measures in place

GMP, GHP, HACCP

Control program/mechanisms

The control program/strategies in place

VARS

- Registration and/or approval of establishments subjected to veterinary controls
- Identification of animal products and their traceability
- Veterinary controls in establishments

HIRS
Registration of establishments and official control.

Notification system in place

Whenever zoonotic agent - Staphylococcal enterotoxin was detected in samples taken, relevant authorities was informed.

Results of the investigation

VARS
Monitoring at the establishments
In 2008, 83 samples of dairy products were taken. Staphylococcal enterotoxin was not detected.

HIRS
In 2008, 40 samples of RTE deli dishes with long shelf life, 100 samples of other RTE deli dishes, 100 samples of ice cream and 100 samples of prepacked cheeses were taken. Staphylococcal enterotoxin was not detected.

Table Staphylococcal enterotoxins in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Staphylococcal enterotoxins
Cheeses made from cows' milk - at processing plant - Monitoring - official sampling (n=5)	VARS	single	25g	47	0
Cheeses made from cows' milk - at retail - Monitoring - official sampling (n=5)	HIRS	single	25 g	96	0
Cheeses made from goats' milk - at processing plant - Monitoring - official sampling (n=5)	VARS	single	25g	12	0
Cheeses made from goats' milk - at retail - Monitoring - official sampling (n=5)	HIRS	single	25 g	2	0
Cheeses made from sheep's milk - at processing plant - Monitoring - official sampling (n=5)	VARS	single	25g	14	0
Cheeses made from sheep's milk - at retail - Monitoring - official sampling (n=5)	HIRS	single	25 g	2	0
Dairy products (excluding cheeses) - at processing plant - Monitoring - official sampling (n=5)	VARS	single	25g	10	0
Other processed food products and prepared dishes - at retail - Monitoring - official sampling [1)]	HIRS	single	25 g	140	0
Other processed food products and prepared dishes - ices and similar frozen desserts - at retail - Monitoring - official sampling (n=1)	HIRS	single	25 g	100	0

Comments:

[1)] from the sample groups RTE deli dishes with long shelf life (n=5) and other RTE deli dishes (n=1)

5. FOODBORNE

Foodborne outbreaks are incidences of two or more human cases of the same disease or infection where the cases are linked or are probably linked to the same food source. Situation, in which the observed human cases exceed the expected number of cases and where a same food source is suspected, is also indicative of a foodborne outbreak.

A. Foodborne outbreaks

System in place for identification, epidemological investigations and reporting of

System for identification of foodborne outbreaks is:
mandatory and national.
It covers: family, general and international outbreaks;
and all classes of microbiological agents.

An outbreak of foodborne illness may be defined as two or more linked cases of the same illness or the situation, where the observed number of cases exceeds the expected number.

Oubreaks of foodborne infections are notifiable by national Law on Infectious diseases, issued in 1995, revised in 2006. Public health professionals in regional institutes are requested to report regularly all investigated outbreaks of infectious intestinal diseases to the Institute of public health of the Republic Slovenia, using a preliminary notification form.
At the end of investigation a final report is also forwarded by the lead investigator.

An outbreak of foodborne illness may be defined as two or more linked cases of the same illness or the situation, where the observed number of cases exceeds the expected number.

Description of the types of outbreaks covered by the reporting:

Reporting covers:
family, general and international outbreaks.

It covers all range of microbiological agents.

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

In 2008 from 49 outbreaks 9 were foodborne.
8 outbreaks were caused by Salmonella spp. (1 Salmonella Coeln, other by Salmonella Enteritidis). The average number of yearly notified foodborne outbreaks from 2004 to 2008 was 20.

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

Agents, which caused the foodborne outbreaks in 2008, were:

The majority of foodborne outbreaks were caused by Salmonella (8/9). In 7 outbreaks the causative agent was Salmonella Enteritidis, in 1 Salmonella Coeln. One outbreak was caused by Staphyloccocus aureus.

The quality of data of food categories is not very good, some data are available;
for Salmonella Enteritidis bean salad, cheese cake, "baked ice cream", cream cake (2 outbreaks), tataar beefsteak.

Salmonella Coeln: unknown source of infection.

Staphyloccocus aureus: buckwheat porridge.

Most of Salmonella outgreaks were PFGE tested and confirmed with high similarity.

There were also 3 outbreaks caused by rotavirus nad 24 caused by noroviruses.They were transmitted contactly.

There was one waterborne outbreak, etiologic agent is unknown.

Relevance of the different type of places of food production and preparation in outbreaks

The number of notified alimentary outbreaks in 2008 (9 outbreaks) was smaller than in year 2007 (16 outbreaks); however some outbreaks were probably not identified.

Place of food production/preparation were: canteen (Staphyloccocus aureus);
inn, chinese restaurant, family, home for disabled children
(Salmonella Enteritidis).

Evaluation of the severity and clinical picture of the human cases

There was a big outbreak of Salmonella Enteritidis in home for the elderly in 2007 with severe clinical picture and dead cases. Other outbreaks were not so severe. There are surely some unidentified outbreaks in Slovenia.

In Salmonella outbreaks in 2008 from 5 to 32 persons were ill.
In Staphyloccocus outbreak in january 2008 40 workers from 700 went ill.

Descriptions of single outbreaks of special interest

Foodborne outbreak in home for the elderly in 2007;

from 580 inhabitants, 420 went ill; 39 were hospitalized and 5 persons died.
The causative agent was Salmonella Enteritidis, isolated from feces and food; PFGE profile confirmed similarity in more than 99%. The incriminated food was bean salad, "cross contaminated" probably from meat.

Foodborne outbreak in the canteen in 2008:

from 700 workers, who ate lunch and dinner in canteen, 40 went ill with acute gastroenterocolitis. The causative agent was probably Staphyloccocus aureus, with enterotoxin C, who was isolated also from food sample of salad with buckwheat poridge. In stool samples of some cases noroviruses were confirmed as well.

Control measures or other actions taken to improve the situation

Improvement of general hygienic conditions in kitchens,
cleaning and disinfection of public kitchens;
education of public kitchen workers about food hygiene;
excluding of public kitchen workers with diarrhea from food handling;
excluding of public kitchen workers from food handling because of lack of knowledge of food hygiene;
control of HACCP system;
booklet with information about Salmonella in food for consumers;

control and improvement of HACCP system in places, where most outbreaks occur - smaller restaurants, inns.

Foodborne Outbreaks: summarized data

	Total number of outbreaks	Outbreaks	Human cases	Hospitalized	Deaths	Number of verified outbreaks
Bacillus	0	0	unknown	unknown	unknown	0
Campylobacter	0	0	unknown	unknown	unknown	0
Clostridium	0	0	unknown	unknown	unknown	0
Escherichia coli, pathogenic	0	0	unknown	unknown	unknown	0
Foodborne viruses	0	0	unknown	unknown	unknown	0
Listeria	0	0	unknown	unknown	unknown	0
Other agents	0	0	unknown	unknown	unknown	0
Parasites	0	0	unknown	unknown	unknown	0
Salmonella	8	7	144	24	0	1
Staphylococcus	1	1	40	0	0	0
Unknown	8	8	643	11	0	0
Yersinia	0	0	unknown	unknown	unknown	0

Verified Foodborne Outbreaks: detailed data

S. Enteritidis

	Value
Code	
Subagent Choice	Salmonella; S. Enteritidis
Outbreak type	General
Human cases	18
Hospitalized	6
Deaths	0
Foodstuff implicated	Bovine meat and products thereof
More Foodstuff	
Type of evidence	Laboratory detection in human cases, Laboratory characterization of food and human isolates, Laboratory detection in implicated food
Setting	Other setting
Place of origin of problem	Household, domestic kitchen
Origin of foodstuff	Intra community trade
Contributory factors	Storage time/temperature abuse
Outbreaks	1
Comment	Family outbreak-raw meat was brought to inn, where they prepared beefsteak. Before transport to inn, family stored meat at room temperature several hours.