European Food Safety Authority

ZOONOSES MONITORING

LITHUANIA

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 2009

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: Lithuania

Reporting Year:

Laboratory name	Description	Contribution
National Food and Veterinary Risk Assessment Institute	National Food and veterinary Risc Assessment Institute Laboratory department	Main data
Center for Communicable Diseases and AIDS	Center for Communicable Diseases and AIDS	Outbraeks data
State Food and Veterinary Service	State Food and Veterinary Service	Main data

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 Lithuania during the year 2009 .

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.

Table Susceptible animal populations

* Only if different than current reporting year

		Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
Animal species	Category of animals	Data	Year*	Data	Year*	Data	Year*	Data	Year*
Cattle (bovine animals)	mixed herds			88133					
	dairy cows and heifers			217971		357114		99510	
	- in total					695614			
Ducks	meat production flocks					2897		95	
Gallus gallus (fowl)	elite breeding flocks, unspecified - in total	73				410000		11	
	broilers	226				6149000		31	
	laying hens	113				2548500		26	
Geese	- in total					2171		83	
Goats	- in total					7106		3372	
Pigs	- in total			551811		1323937		4977	
Sheep	- in total			5402		50318		3954	
Solipeds, domestic	horses - in total			2441		18324		3422	
Turkeys	meat production flocks	36		383132		640000		7	

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

2.1.2 Salmonellosis in humans

A. Salmonellosis in humans

Reporting system in place for the human cases

Health minister's order regulates information providing system on communicable diseases and it's list. Clinicist informs territorial public healthcare institution about suspected or probable or confirmed case in 12 hours by phone, in 72 hours sends an urgent report. When diagnosis is changed clinicist informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions registrate every case in standart form. In the end of every month data on morbidity of communicable diseases are summerised and send to national level CCDPC. CCDPC publishes monthly bulletin of morbidity in infectious diseases and sends it to regional public healthcare centers, State public healthcare service, State food and veterinary service, boardering countries WHO, EU communicable diseases surveillance network. Every year territorial public healthcare institutions provide annual statistical data on extended epidemiological investigations.

Case definition

Clinical picture compatible with salmonellosis, isolation of Salmonella (non-typhi, non-paratyphi) from a clinical specimen.

Diagnostic/analytical methods used

Methods used:
Bacteriological culture
Quality assurance procedures:
Internal quality control sistem:
a) standart media quality control procedures
b) standart antisera control procedures
c) standart antimicrobial susceptibility testing control procedures
External â€žPTâ€œ Quality Assessment Programmes. Labquality Helsinki Finland .
Reference:WHO Manual for the laboratory identification and antimicrobial susceptibility testing of bacterial pathogens of public health concern in the developing world. 2003

Notification system in place

Every probable, suspected, or confirmed case is registered in personal healthcare institution according Health minister's order and is informed to territorial public healthcare institution where cases are registered. All detected cases are reported to the national level CCDPC and cases are registered in State register for communicable diseases.

History of the disease and/or infection in the country

Since 1959 there are detected 2 peaks of salmonellosis incidence: 1975-1980 S.typhimurium outspread through milk formula produced in centralised milk formula kitchens and in children departments of hospitals. Since 1989 to 1998 was noticed second peak of incidence where S. enteritidis dominated.

Results of the investigation

Territorial public healthcare institutions perform an epidemiological investigation of salmonellosis clusters

according to standartised protocol. These protocols are kept in territorial public healthcare institutions. Computerised communicable diseases reporting system is implemented in two regional public health centers (Vilnius, Kaunas).

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

Incidence of salmonellosis is being seen statistically decreasing over the last 10 year. Incidence rate gradually decreased from 68,8/ 100 000 inhabitants in 1998 to 33,3/100 000 inhabitants in 2003. However increased morbidity of this infection under 69/100 000 inhabitants from 2003 to 2005. About 80% of cases were sporadic.

Utmost morbidity of salmonellosis is registered among children under 3 age range. Seasonal increase of salmonellosis is observed during May â€“ October months. The most common serological type of salmonella isolated from human, was S.Enteritidis (90 %). According to the survey data of sick people, more than 60% of patients get sick due to consumption of home made food yearly. The main risk factors of salmonellosis are poultry, eggs and their products.

Relevance as zoonotic disease

Between all diarrhoea diseases salmonellosis consist about 10%.

2.1.3 Salmonella in foodstuffs

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from broilers (Gallus gallus) - fresh - at retail	NFVRAI	Single	25 g	71	1	1		
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail	NFVRAI	Single	25 g	11	2	1		1
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail	NFVRAI	Single	25 g	26	0			
Meat from broilers (Gallus gallus) - mechanically separated meat (MSM)	NFVRAI	Batch	10 g	4	1	1		
Meat from broilers (Gallus gallus) - minced meat - intended to be eaten cooked - at processing plant	NFVRAI	Batch	10 g	6	3	2		1
Meat from turkey - fresh - at slaughterhouse	NFVRAI	Single	25 g	20	0			
Meat from turkey - fresh - at retail	NFVRAI	Single	25 g	9	0			
Meat from turkey - meat preparation - intended to be eaten cooked - at retail	NFVRAI	Batch	25 g	1	0			
Meat from turkey - meat products - cooked, ready-to -eat - at processing plant	NFVRAI	Batch	25 g	2	0			
Meat from turkey - meat products - cooked, ready-to -eat - at retail	NFVRAI	Batch	25 g	3	0			
Meat from turkey - mechanically separated meat (MSM)	NFVRAI	Batch	10 g	1	0			

Table Salmonella in poultry meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from turkey - minced meat - intended to be eaten cooked - at processing plant	NFVRAI	Batch	10 g	7	0			
Meat from duck - fresh - skinned - at processing plant - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Single	25 g	1	0			
Meat from duck - meat products - cooked, ready-to-eat - chilled - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Single	25 g	1	0			
Meat from poultry, unspecified - offal - unspecified - chilled - at processing plant - domestic production - Control and eradication programmes - official sampling - selective sampling	NFVRAI	Batch	10 g	5	0			

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from bovine animals - fresh - at slaughterhouse	NFVRAI	Single	25 g	9	0			
Meat from bovine animals - fresh - at processing plant	NFVRAI	Single	25 g	1	0			
Meat from bovine animals - fresh - at retail	NFVRAI	Single	25 g	4	0			
Meat from pig - fresh - at slaughterhouse	NFVRAI	Single	25 g	2	0			
Meat from pig - fresh - at processing plant	NFVRAI	Single	25 g	31	0			
Meat from pig - fresh - at retail	NFVRAI	Single	25 g	2	0			
Meat from pig - meat preparation - intended to be eaten cooked - at processing plant	NFVRAI	Batch	10 g	4	0			
Meat from pig - meat preparation - intended to be eaten cooked - at retail	NFVRAI	Batch	10 g	10	1		1	
Meat from pig - meat products - cooked, ready-to-eat - at retail	NFVRAI	Batch	25 g	11	0			
All foodstuffs - at retail - domestic production - Control and eradication programmes - official sampling - selective sampling [1)]	NFVRAI	Batch	25 g	16	0			
Meat, mixed meat - meat preparation - intended to be eaten cooked - chilled - at retail - domestic production - Control and eradication programmes - official sampling - selective sampling	NFVRAI	Batch	25 g	21	0			
Meat, mixed meat - meat products - cooked, ready-to-eat - chilled - at retail - domestic production - Control and eradication programmes - official sampling - selective sampling	NFVRAI	Batch	25 g	32	0			

Table Salmonella in red meat and products thereof

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat, mixed meat - meat products - pâté - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	25 g	3	0			

Comments:

[1)] Offal

Table Salmonella in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Eggs - table eggs - at packing centre	NFVRAI	Batch	25 g	3	0			
Eggs - table eggs - at retail	NFVRAI	Batch	25 g	26	0			
Fishery products, unspecified - at retail	NFVRAI	Batch	25 g	6	1	1		
Fruits and vegetables - precut	NFVRAI	Batch	25 g	4	0			
Beverages, non-alcoholic - soft drinks - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling [1)]	NFVRAI	Batch	25 ml	2	0			
Confectionery products and pastes - at processing plant - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	25 g	7	0			
Confectionery products and pastes - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	25 g	7	0			
Other food of non-animal origin - at retail - imported - Control and eradication programmes - official sampling - selective sampling [2)]	NFVRAI	Batch	25 g	1	0			
Other processed food products and prepared dishes - unspecified - ready-to-eat foods - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling [3)]	NFVRAI	Batch	25 g	8	1	1		
Ready-to-eat salads - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	25 g	11	0			

Table Salmonella in other food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Sauce and dressings - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	25 g	5	1	1		
Water - potable water - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Single	50 ml	9	0			

Comments:

[1)] compotes
[2)] Food additive
[3)] Cookery

Table Salmonella in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Cheeses made from goats' milk - at processing plant [1)]	NFVRAI	Batch	25 g	1	0			
Dairy products (excluding cheeses) - cream - made from raw or low heat-treated milk - at retail [2)]	NFVRAI	Batch	25 g	3	0			
Milk, goats' - raw	NFVRAI	Batch	25 g	1	0			
Dairy products (excluding cheeses) - dairy products, not specified - made from raw or low heat-treated milk - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling [3)]	NFVRAI	Batch	25 g	2	0			
Dairy products (excluding cheeses) - ice-cream - made from pasteurised milk - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling [4)]	NFVRAI	Batch	25 g	1	0			
Dairy products (excluding cheeses) - probiotic drinks - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling [5)]	NFVRAI	Batch	25 g	1	0			
Fats and oils (excluding butter) - fats - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling [6)]	NFVRAI	Batch	25 g	2	0			
Infant formula - ready-to-eat - at processing plant - domestic production - Control and eradication programmes - official sampling - suspect sampling [7)]	NFVRAI	Batch	25 g	1	0			

Comments:

Table Salmonella in milk and dairy products

[1] Fresh cheese
[2] Sour cream
[3] Curds
[4] With chocolate
[5] Kefir
[6] Fat mixture
[7] Goat milk and grain liquor mixture

2.1.4 Salmonella in animals

Table Salmonella in breeding flocks of Gallus gallus

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Hadar	S. Infantis	S. Typhimurium	S. Virchow	Salmonella spp., unspecified
Gallus gallus (fowl) - parent breeding flocks, unspecified - adult	73	NFVRAI	Flock	73	0	0					

Footnote:

1. All the flocks are tested.
2. All samples are for competent authorities.

Table Salmonella in other poultry

	Number of existing flocks	Source of information	Sampling unit	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Gallus gallus (fowl) - laying hens - adult - at farm - Control and eradication programmes - official sampling - objective sampling	113	NFVRAI	Flock	81	5	5		
Gallus gallus (fowl) - broilers - before slaughter - at farm - Control and eradication programmes - official and industry sampling	226	NFVRAI	Flock	218	5	5		
Turkeys - meat production flocks	36	NFVRAI	Flock	20	2		1	1

Footnote:

1. All samples are for competent autorities.

2.1.5 Salmonella in feedingstuffs

Table Salmonella in compound feedingstuffs

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Compound feedingstuffs for cattle - final product		Batch	25	3	0			
Compound feedingstuffs for pigs - final product		Batch	25	7	0			
Compound feedingstuffs for poultry (non specified) - final product		Batch	25	3	0			
Compound feedingstuffs for poultry - laying hens - final product		Batch	25	3	0			
Compound feedingstuffs for poultry - broilers - final product		Batch	25	1	0			

Table Salmonella in other feed matter

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Feed material of oil seed or fruit origin - rape seed derived		Batch	25	7	0			
Feed material of oil seed or fruit origin - soya (bean) derived		Batch	25	6	0			

2.1.7 Antimicrobial resistance in Salmonella isolates

Table Antimicrobial susceptibility testing of Salmonella in meat from broilers (Gallus gallus)

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	7	
Antimicrobials:	N	n
Amphenicols - Chloramphenicol	7	0
Amphenicols - Florfenicol	0	0
Cephalosporins - 3rd generation cephalosporins	7	0
Fluoroquinolones - Ciprofloxacin	7	0
Fluoroquinolones - Enrofloxacin	7	0
Quinolones - Nalidixic acid	7	1
Trimethoprim	7	0
Sulfonamides - Sulfonamide	7	0
Aminoglycosides - Streptomycin	7	0
Aminoglycosides - Gentamicin	7	0
Aminoglycosides - Neomycin	0	0
Aminoglycosides - Kanamycin	0	0
Trimethoprim + sulfonamides	7	0
Penicillins - Ampicillin	7	1
Tetracyclines - Tetracycline	7	0
Fully sensitive	7	5
Resistant to 1 antimicrobial	7	2
Resistant to 2 antimicrobials	7	0

Table Antimicrobial susceptibility testing of Salmonella in meat from broilers (Gallus gallus)

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	7	
Antimicrobials:	N	n
Resistant to 3 antimicrobials	7	0
Resistant to 4 antimicrobials	7	0
Resistant to >4 antimicrobials	7	0

Table Antimicrobial susceptibility testing of Salmonella in meat from pig

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	3	
Antimicrobials:	N	n
Amphenicols - Chloramphenicol	3	1
Amphenicols - Florfenicol	0	0
Cephalosporins - 3rd generation cephalosporins	3	0
Fluoroquinolones - Ciprofloxacin	3	0
Fluoroquinolones - Enrofloxacin	3	0
Quinolones - Nalidixic acid	3	0
Trimethoprim	3	0
Sulfonamides - Sulfonamide	3	1
Aminoglycosides - Streptomycin	3	0
Aminoglycosides - Gentamicin	3	0
Aminoglycosides - Neomycin	0	0
Aminoglycosides - Kanamycin	0	0
Trimethoprim + sulfonamides	3	0
Penicillins - Ampicillin	3	1
Tetracyclines - Tetracycline	3	2
Fully sensitive	3	0
Resistant to 1 antimicrobial	3	3
Resistant to 2 antimicrobials	3	3
Resistant to 3 antimicrobials	3	0
Resistant to 4 antimicrobials	3	0

Table Antimicrobial susceptibility testing of Salmonella in meat from pig

Salmonella	Salmonella spp.	
Isolates out of a monitoring program (yes/no)	no	
Number of isolates available in the laboratory	3	
Antimicrobials:	N	n
Resistant to >4 antimicrobials	3	0

Footnote:

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Table Cut-off values for antibiotic resistance testing of Salmonella in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.06	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulfonamides	Sulfonamides		256	
Aminoglycosides	Streptomycin		32	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.5	
Penicillins	Ampicillin		4	

Table Cut-off values for antibiotic resistance testing of Salmonella in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.06	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulfonamides	Sulfonamides		256	
Aminoglycosides	Streptomycin		32	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.5	
Penicillins	Ampicillin		4	

2.2 CAMPYLOBACTERIOSIS

2.2.1 General evaluation of the national situation

2.2.2 Campylobacteriosis in humans

A. Thermophilic Campylobacter in humans

Reporting system in place for the human cases

Health minister's order regulates information providing system on communicable diseases and it's list. Clinicist informs territorial public healthcare institution about suspected or detected case in 12 hours by phone, in 72 hours sends an urgent report. When diagnosis is changed clinicist informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions registrate every case in standart form. In the end of every month data on morbidity of communicable diseases are summerised and send to national level CCDPC. CCDPC publishes monthly bulletin of morbidity in infectious diseases and sends it to regional public healthcare centers, State public healthcare service, State food and veterinary service boardering countries WHO, EU communicable diseases surveillance network. Every year territorial public healthcare institutions provide annual statistical data on extended epidemiological investigations.

Case definition

Clinical picture compatible with campylobacteriosis, isolation of Campylobacter sp. from any clinical specimen.

Diagnostic/analytical methods used

Methods used:
Bacteriological culture
Quality assurance procedures:
Internal quality control sistem:
a) standart media quality control procedures
b) standart antimicrobial susceptibility testing control procedures
External â€žPTâ€œ Quality Assessment Programmes.
Labquality Helsinki Finland .
Reference:WHO Manual for the laboratory identification and antimicrobial susceptibility testing of bacterial pathogens of public health concern in the developing world. 2003

Notification system in place

Every probable, suspected, or confirmed case is registered in personal healthcare institution according Health minister's order and is informed to territorial public healthcare institution where cases are registered. All detected cases are reported to the national level CCDPC and cases are registered in State register for communicable diseases.

History of the disease and/or infection in the country

Campylobacteriosis started to be registrate since 1995 in Lithuania.

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

Campylobacteriosis is obligatory modifiable infection in Lithuania.
Morbidity of campylobacteriosis increased from 0,8/100 000 inhabitants in 1996 to 20,2/100 000 inhabitants in 2005.
Utmost morbidity of campylobacteriosis is registered among children under 3 age range.

According to the survey data of sick people, had been defined that infection commonly spreads trough poultry and their products. More than 70 % of patients get sick due to consumption of home made food. Microbiological diagnostic of this infection is routine in Lithuania.

In 2005 serological type of 52% campylobacter cultures isolated from patients were not determined. C.Jejuni was composed 42%, C.Coli - 5% among typed cultures. 2 family outbreaks of campylobacteriosis were registered in 2005, where suspected reason was home made poultry products.

Relevance as zoonotic disease

As in all European countries campylobateriosis remains one of the dominant zoonosis in Lithuania.

2.2.3 Campylobacter in foodstuffs

Table Campylobacter in poultry meat

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Campylobacter	C. coli	C. jejuni	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
Meat from broilers (Gallus gallus) - fresh - at processing plant	NFVRAI	Batch	25 g	2	0					
Meat from broilers (Gallus gallus) - fresh - at retail	NFVRAI	Batch	25 g	3	2		2			
Meat from broilers (Gallus gallus) - meat preparation - intended to be eaten cooked - at retail	NFVRAI	Batch	25 g	1	0					
Meat from turkey - fresh - at slaughterhouse	NFVRAI	Batch	25 g	2	2		2			
Meat from turkey - fresh - at processing plant	NFVRAI	Batch	25 g	1	0					
Meat from turkey - meat preparation - intended to be eaten cooked - at retail	NFVRAI	Batch	25 g	1	0					

2.2.4 Antimicrobial resistance in Campylobacter isolates

Table Cut-off values used for antimicrobial susceptibility testing of Campylobacter in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

Table Cut-off values used for antimicrobial susceptibility testing of Campylobacter in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

Table Cut-off values used for antimicrobial susceptibility testing of Campylobacter in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Tetracyclines	Tetracycline		2	
Fluoroquinolones	Ciprofloxacin		1	
Aminoglycosides	Gentamicin		1	
	Streptomycin		2	
Macrolides	Erythromycin		4	

2.3 LISTERIOSIS

2.3.1 General evaluation of the national situation

A. Listeriosis general evaluation

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

26 samples ovine tested all negative

Relevance of the findings in animals, feedingstuffs and foodstuffs to human cases (as a source of infection)

26 ovines tested all negative

2.3.2 Listeriosis in humans

A. Listeriosis in humans

Reporting system in place for the human cases

Health minister's order regulates information providing system on communicable diseases and it's list. Clinicist informs territorial public healthcare institution about suspected or detected case in 12 hours by phone, in 72 hours sends an urgent report. When diagnosis is changed clinicist informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions registrate every case in standart form. In the end of every month data on morbidity of communicable diseases are summerised and send to national level CCDPC. CCDPC publishes monthly bulletin of morbidity in infectious diseases and sends it to regional public healthcare centers, State public healthcare service, State food and veterinary service boardering countries WHO, EU communicable diseases surveillance network. Every year territorial public healthcare institutions provide annual statistical data on extended epidemiological investigations.

Case definition

Infection caused by Listeria monocytogenes, isolation of L.monocytogenes from a normaly sterile site:blood, or cerebrospinal fluid or joint, pleural or pericadial fluid.

Diagnostic/analytical methods used

Methods used-
Bacteriological culture
Quality assurance procedures:
Internal quality control sistem:
a) standart media quality control procedures
b) standart antimicrobial susceptibility testing control procedures
External â€žPTâ€œ Quality Assessment Programmes.
Labquality Helsinki Finland
Reference: WHO Manual for the laboratory identification and antimicrobial susceptibility testing of bacterial pathogens of public health concern in the developing world. 2003

Notification system in place

Every probable, suspected, or confirmed case is registered in personal healthcare institution according Health minister's order and is informed to territorial public healthcare institution where cases are registered. All detected cases are reported to the national level CCDPC and cases are registered in State register for communicable diseases.

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

During last years have been registered sporadic cases of listeriosis in Lithuania. Since 1998 to 2005 have been registered 10 cases of listeriosis. During above mentioned period have been registered 3 fatal cases of 10. For most patients the source of infection isn't detected.

Relevance as zoonotic disease

Although incidence rate isn't large therefore due large cases of death this zoonosis remains a big problem in Lithuania.

2.3.3 Listeria in foodstuffs

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Listeria	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
Fish - smoked - at retail [1)]	NFVRAI	Batch	25 g	1	0	1	0			
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at processing plant	NFVRAI	Batch	1 g	1	0			1	0	0
Meat from broilers (Gallus gallus) - meat products - cooked, ready-to-eat - at retail	NFVRAI	Batch	1 g	4	0			4	0	0
Meat from pig - fresh	NFVRAI	Batch	25 g	10	2	10	2			
Meat from pig - meat products - cooked, ready-to-eat - at retail	NFVRAI	Batch	25 g	2	0	2	0			
All foodstuffs - at retail - domestic production - Control and eradication programmes - official sampling - selective sampling [2)]	NFVRAI	Batch	1 g	1	0			1	0	0
All foodstuffs - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling [3)]	NFVRAI	Batch	1 g	2	0			2	0	0
Bakery products - cakes - containing heat-treated cream - at processing plant - domestic production - Control and eradication programmes - official sampling - selective sampling	NFVRAI	Batch	25 g for detection and 1 g for enumeration	4	0	2	0	2	0	0
Bakery products - desserts - containing heat-treated cream - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	1 g	1	0			1	0	0

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Listeria	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
Cereals and meals - at processing plant - domestic production - Control and eradication programmes - official sampling - selective sampling [4)]	NFVRAI	Batch	25 g	1	0	1	0			
Fats and oils (excluding butter) - fats - at processing plant - domestic production - Control and eradication programmes - official sampling - selective sampling [5)]	NFVRAI	Batch	25 g	1	0	1	0			
Fish - gravad /slightly salted - at processing plant - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	25 g	2	1	2	1			
Fishery products, unspecified - ready-to-eat - chilled - at retail - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	1 g	6	1			6	0	1
Fishery products, unspecified - ready-to-eat - chilled - at retail - imported - Control and eradication programmes - official sampling - suspect sampling [6)]	NFVRAI	Batch	25 g for detection and 1 g for enumeration	3	2	2	2	1	0	0
Meat from broilers (Gallus gallus) - fresh - chilled - at processing plant - domestic production - Control and eradication programmes - official sampling - selective sampling	NFVRAI	Batch	25 g for detection and 1 g for enumeration	3	1	2	1	1	0	0
Meat from pig - minced meat - intended to be eaten cooked - chilled - at processing plant - domestic production - Control and eradication programmes - official sampling - suspect sampling	NFVRAI	Batch	25 g	1	1	1	1			

Table Listeria monocytogenes in other foods

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Listeria	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
Meat from turkey - fresh - chilled - at retail - domestic production - Control and eradication programmes - official sampling - selective sampling	NFVRAI	Batch	25 g	10	0	10	0			
Meat, mixed meat - meat products - cooked, ready-to-eat - chilled - at processing plant - domestic production - Control and eradication programmes - official sampling - selective sampling	NFVRAI	Batch	25 g	3	0	3	0			
Meat, mixed meat - meat products - cooked, ready-to-eat - chilled - at retail - domestic production - Control and eradication programmes - official sampling - selective sampling	NFVRAI	Batch	25 g for detection and 1 g for enumeration	21	0	5	0	16	0	0

Comments:

[1)] Cold-smoked mackerel
[2)] Salad
[3)] Salads
[4)] Grow wheat
[5)] Beef fat
[6)] Caviar

Table Listeria monocytogenes in milk and dairy products

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Listeria	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 - hard - made from pasteurised milk - at retail	NFVRAI	Batch	1 g	1	0			1	0	0
Dairy products (excluding cheeses) - cream - at retail [1)]	NFVRAI	Batch	1 g	1				1	0	0

Comments:

[1)] Sour cream

2.3.4 Listeria in animals

Table Listeria in animals

	Source of information	Sampling unit	Units tested	Total units positive for Listeria	L. monocytogenes	Listeria spp., unspecified
Goats	SFVS	Animal	17	0		

2.4 E. COLI INFECTIONS

2.4.1 General evaluation of the national situation

2.4.2 E. coli infections in humans

A. Verotoxigenic Escherichia coli infections in humans

Reporting system in place for the human cases

E.coli O157 and other VTEC infection is listed among other obligatory registered and reportable communicable diseases in Lithuania. Epidemiological surveillance system of these infections and VTEC pathogens is analogical to epidemiological system of salmonellosis and other communicable diseases. Surveillance of HUS syndrome are not compulsory registered in Lithuania.

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

No cases of Verotoxigenic Escherichia coli infections have been reported in Lithuania in 2005.

2.5 TUBERCULOSIS, MYCOBACTERIAL DISEASES

2.5.1 General evaluation of the national situation

2.5.2 Mycobacterium in animals

Table Tuberculosis in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Mycobacterium	M. bovis	M. tuberculosis	Mycobacterium spp., unspecified
Pigs	SFVS	Animal	52423	0			

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	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			
Lietuva	116006	707750	116006	100	0	0	Trade, surveillance	63304	12927	4	0
Total : [1)]	116006	707750	116006	100	0	0	N.A.	63304	12927	4	0

Comments:

[1)] N.A.

2.6 BRUCELLOSIS

2.6.1 General evaluation of the national situation

2.6.2 Brucellosis in humans

A. Brucellosis in humans

Reporting system in place for the human cases

Health minister's order regulates information providing system on communicable diseases and it's list. Clinicist informs territorial public healthcare institution about suspected or detected case in 12 hours by phone, in 72 hours sends an urgent report. When diagnosis is changed clinicist informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions registrate every case in standart form and repors about every suspected or detected case of brucellosis to the national level CCDPC in 2 hours by phone, in 12 hours by fax or email.

In the end of every month data on morbidity of communicable diseases are summerised and send to national level CCDPC. CCDPC publishes monthly bulletin of morbidity in infectious diseases and sends it to regional public healthcare centers, State public healthcare service, State food and veterinary service boardering countries WHO, EU communicable diseases surveillance network. Every year territorial public healthcare institutions provide annual statistical data on extended epidemiological investigations.

Case definition

Clinical picture compatible with bruceliosis, demonstration of a specific antibody response, demonstration by immunofluorescence of Brucella sp. in a clinical specimen, isolation of Brucella sp. from a clinical specimen.

Diagnostic/analytical methods used

Methods used:

Bacteriological culture.

Serum antibodies agliutination reaction with febrile Antigene.

Quality assurence procedures:

Internal quality control sistem:a) standart media quality control procedures b) standart antimicrobial susceptibility testing control procedures.

External â€žPTâ€œ Quality Assessment Programmes. Labquality Helsinki Finland .

Reference:Mackie and McCartney â€žPractical medical microbiologyâ€œ, 1996.Department of Health and Human Servines â€œ Biosafety in microbiology and biomedical laboratorinesâ€œ, 1999.Yagupsky, P., et al. â€žDetection of brucellae in blood culturesâ€œ, 1999.

Notification system in place

Every probable, suspected, or confirmed case is registered in personal healthcare institution according Health minister's order and is informed to territorial public healthcare institution where cases are registered. All detected cases are reported to the national level CCDPC and cases are registered in State register for communicable diseases.

History of the disease and/or infection in the country

Brucellosis was often diseases among humans and animals in post-war years in Lithuania. Brucellosis of horned cattle's and pig's often was imported from Kaliningrad district. In 1953 sheep brucellosis was imported with brood sheep to Moletu district. Hare's brucellosis has been diagnosed first time in 1958. 1920 sick cattle have been registered in 54 farms in 1956. 28 cases of human brucellosis have been

registered in 1956. Cases of brucellosis have been registered every year by 1962. Since 1963 to 1977 cases of brucellosis haven't been registered in Lithuania. 4 farm's workers and 1 private cow owner's child have sick with brucellosis in one Lithuanian district in 1978 (the cow was bought without veterinary verification in Kaliningrad district). Human vaccination against brucellosis was stoped in 1965 and animal vaccination in 1968.

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

4 human brucellosis cases have been registered in one administration territory in 1991. 14 sick persons with brucellosis have been detected by performing prophylaxis investigations in Utena's meat corporation in 1992. Supposedly the cluster of brucellosis has been formed duo cattle acquired in Belarus. No cases of brucellosis has been registered in 2005.

2.6.3 Brucella in animals

Table Brucellosis in other animals

	Source of information	Sampling unit	Units tested	Total units positive for Brucella	B. abortus	B. melitensis	B. suis	Brucella spp., unspecified
Pigs	SFVS	Animal	51803	0				

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
Lietuva	7624	69561	7624	100	0	0	14	418	0	0	0	8	0	0
Total : [1)]	7624	69561	7624	100	0	0	14	418	0	0	0	8	0	0

Comments:

[1)] N.A.

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 serological blood tests	Number of suspended herds	Number of positive animals		Number of animals examined microbio logically	Number of animals positive microbio logically
																		Sero logically	BST		
Lietuva	116006	707750	116006	100	0	0	3242	25263	0	4787	96933	0	248	0	0	187	23	0	0	32	0
Total : [1)]	116006	707750	116006	100	0	0	3242	25263	0	4787	96933	0	248	0	0	187	23	0	0	32	0

Comments:

[1)] N.A.

2.7 YERSINIOSIS

2.7.1 General evaluation of the national situation

2.7.2 Yersiniosis in humans

A. Yersinosis in humans

Reporting system in place for the human cases

Health minister's order regulates information providing system on communicable diseases and it's list. Clinicist informs territorial public healthcare institution about suspected or detected case in 12 hours by phone, in 72 hours sends an urgent report. When diagnosis is changed clinicist informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions registrate every case in standart form. In the end of every month data on morbidity of communicable diseases are summerised and send to national level CCDPC. CCDPC publishes monthly bulletin of morbidity in infectious diseases and sends it to regional public healthcare centers, State public healthcare service, State food and veterinary service boardering countries WHO, EU communicable diseases surveillance network. Every year territorial public healthcare institutions provide annual statistical data on extended epidemiological investigations.

Case definition

Clinical picture compatible with Yersiniosis, isolation of Yersinia enterocolitica or pseudotuberculosis from a clinical specimen.

Diagnostic/analytical methods used

Methods used:
Bacteriological culture
Enzyme linked immunosorbent assay (ELISA) IgG Enzyme linked immunosorbent assay (ELISA) IgA
Quality assurance procedures:
Internal quality control sistem:
a) standart media quality control procedures
b) standart antimicrobial susceptibility testing control procedures
c) internal quality control procedures
External â€žPTâ€œ Quality Assessment Programmes.
Labquality Helsinki Finland .
Reference:WHO Manual for the laboratory identification and antimicrobial susceptibility testing of bacterial pathogens of public health concern in the developing world. 2003.
Instructions for use of manufacturer

Notification system in place

Every probable, suspected, or confirmed case is registered in personal healthcare institution according Health minister's order and is informed to territorial public healthcare institution where cases are registered. All detected cases are reported to the national level CCDPC and cases are registered in State register for communicable diseases.

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

During 1995 â€“ 2005 morbidity of yersiniosis increased from 2/100 000 inhabitants to 14,4/100 000 inhabitants.
Utmost morbidity of yersiniosis is registered among children under 3 age range. More than 90% cases of yersiniosis were caused by Y.Enterocolitica. Y. Enterocolitica 03 composed 68% among all typed Y.

Enterocolitica cultures in 2005. Survey data of sick people indicate that more than 70% of patients get sick due to consumption of home made food yearly. Raw vegetables as risk factor were dominant.

2.7.3 Yersinia in foodstuffs

Table Yersinia in food

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Yersinia	Y. enterocolitica	Y. pseudotuberculosis	Yersinia spp., unspecified	Y. enterocolitica - O:3	Y. enterocolitica - O:9	Y. enterocolitica - Y. enterocolitica, unspecified
Vegetables [1)]	NFVRAI	Batch	25 g	5	0						

Comments:

[1)] Vegetables and fruits

2.8 TRICHINELLOSIS

2.8.1 General evaluation of the national situation

2.8.2 Trichinella in animals

Table Trichinella in animals

	Source of information	Sampling unit	Units tested	Total units positive for Trichinella	T. spiralis	Trichinella spp., unspecified
Foxes	SFVS	Animal	11	2	2	
Pigs	SFVS	Animal	549146	7	7	
Solipeds, domestic - horses	SFVS	Animal	2441	0		
Wild boars - wild	SFVS	Animal	24680	86	86	

2.9 ECHINOCOCCOSIS

2.9.1 General evaluation of the national situation

2.9.2 Echinococcosis in humans

A. Echinococcus spp. in humans

Reporting system in place for the human cases

Health minister's order regulates information providing system on communicable diseases and it's list. Clinicist informs territorial public healthcare institution about suspected or detected case in 12 hours by phone, in 72 hours sends an urgent report. When diagnosis is changed clinicist informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions registrate every case in standart form. In the end of every month data on morbidity of communicable diseases are summerised and send to national level CCDPC. CCDPC publishes monthly bulletin of morbidity in infectious diseases and sends it to regional public healthcare centers, State public healthcare service, State food and veterinary service boardering countries WHO, EU communicable diseases surveillance network. Every year territorial public healthcare institutions provide annual statistical data on extended epidemiological investigations.

Case definition

Clinical picture compatible with echinococcosis, diagnosis by histopathology, a combination of imaging techniques and serological tests.

Diagnostic/analytical methods used

Methods used:
Echinococcus granulosus IgG Enzyme linked immunosorbent assay (ELISA);
Echinococcus multilocularis IgG Enzyme linked immunosorbent assay (ELISA);
Echinococcus Western Blot IgG
Quality assurance procedures:
Internal quality control procedures
Reference:Instructions for use of manufacturers

Notification system in place

Every probable, suspected, or confirmed case is registered in personal healthcare institution according Health minister's order and is informed to territorial public healthcare institution where cases are registered. All detected cases are reported to the national level CCDPC and cases are registered in State register for communicable diseases.

History of the disease and/or infection in the country

There are registered sporadic cases of echinococcosis.

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

According to the 2001 â€“ 2005 data tendency of echinoccocosis morbidity has been seen increasing. Incidence rate increased from 0,11/100 000 inhabitants in 2001 to 0,43/100 000 in 2004 â€“ 2005. Mostly the source of this infection is remaining unknown (53 %).

2.9.3 Echinococcus in animals

Table Echinococcus in animals

	Source of information	Sampling unit	Units tested	Total units positive for Echinococcus	E. granulosus	E. multilocularis	Echinococcus spp., unspecified
Cattle (bovine animals)	SFVS	Animal	84985	16			16
Pigs	SFVS	Animal	167266	348			348
Sheep	SFVS	Animal	247	0			
Goats - at slaughterhouse	SFVS	Animal	12	0			

2.10 TOXOPLASMOSIS

2.10.1 General evaluation of the national situation

2.10.2 Toxoplasmosis in humans

A. Toxoplasmosis in humans

Reporting system in place for the human cases

Health minister's order regulates information providing system on communicable diseases and it's list. Clinicist informs territorial public healthcare institution about suspected or detected case in 12 hours by phone, in 72 hours sends an urgent report. When diagnosis is changed clinicist informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions registrate every case in standart form. In the end of every month data on morbidity of communicable diseases are summerised and send to national level CCDPC. CCDPC publishes monthly bulletin of morbidity in infectious diseases and sends it to regional public healthcare centers, State public healthcare service, State food and veterinary service boardering countries WHO, EU communicable diseases surveillance network. Every year territorial public healthcare institutions provide annual statistical data on extended epidemiological investigations.

Case definition

Clinical picture compatible with toxoplasmosis, demontration of a specific toxoplasma antibody response, demonstration of the agent in body tissues, detection of toxoplasma nucleic acid.

Diagnostic/analytical methods used

Methods used:Enzyme linked immunosorbent assay (ELISA) IgG;
Enzyme linked immunosorbent assay (ELISA) IgG avidyti;
Enzyme linked immunosorbent assay (ELISA) IgM;
Imunosorbent aggliutination assay (ISAGA) IgA and IgM;
Toxoplasmosis Western Blot IgG and IgM.
Quality assurance procedures:
Internal quality control procedures
External â€žPTâ€œ Quality Assessment Programmes.
â€œLabqualityâ€, Helsinki, Finland.
Reference:Instructions for use of manufacturers

Notification system in place

Every probable, suspected, or confirmed case is registered in personal healthcare institution according Health minister's order and is informed to territorial public healthcare institution where cases are registered. All detected cases are reported to the national level CCDPC and cases are registered in State register for communicable diseases.

History of the disease and/or infection in the country

The disease began to registrate in 1992. Since 1999 is started to registrate congenital toxoplasmosis.

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

During the 2001 â€“ 2005 morbidity of toxoplasmosis has been tendency increased. Most of cases were registered in 2005 (incidence rate was 7,38/100 000 inhabitants). Every year cases of congenital toxoplasmosis are registered. Most of these cases were notified in 2001 (12 cases) and one case - in 2005.

Relevance as zoonotic disease

The largest morbidity is among 18-39 years old women therefore remains a threat of congenital toxoplasmos.

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

Rabies has been compulsory notifiable an enzootic disease in Lithuania for many years. The State Food and Veterinary Service has carried out surveillance and risk assessment of the epidemiological situation of zoonotic diseases and has developed and implemented prevention and control measures as regard rabies in a country. Suspected cases were notified to the local State Food and Veterinary Services and relevant samples were collected and submitted to veterinary laboratories for the investigation by direct immunofluorescence test and biological test. Mouse inoculation has been used to confirm or rule out rabies on negative samples tested by immunofluorescence method.

Private veterinarians vaccinate approximately 200000 dogs and 25000 cats annually. This represents about 70 % of the estimated dog population and about 10 % cat population. Only inactivated vaccines of the highly immunogenic strains of the rabies virus have been used for vaccination dogs and cats. Emergency vaccination of domestic animals is carried out in the areas where the positive case of rabies was detected.

Pet animal movements have been controlled at the border entry points and it is required obligatory vaccination against rabies and appropriate animal identification and veterinary certificate for commercial movements of pet animals and approved passport or veterinary certificate for non-commercial movements of animals. Since October of 2004, for international movements, all dogs and cats must be identified by tattoo or microchip. They should be vaccinated against rabies with live or inactivated vaccine of at least one antigenic dose and authorized veterinarian should do vaccination. Pet passport should be used for the movement of animals between Member States. All identified pet animals should be registered into computerized database that will be accessible for all relevant competent authorities.

Oral vaccination of wildlife was pursued according Lithuanian National Rabies Prevention Programme during the period of 1995-2000. SAG 1, Lysvulpen (in 1998) and Rabifox (in 1999-2000) marked oral rabies vaccines were used in small-defined wildlife living areas covering of approximately from 1000 until 12000 square kilometers. The oral vaccination was carried out twice per year in March-April and October-November. Aircraft, hunters, game wardens and forest workers were involved in distribution of baits with tetracycline marked vaccine. Semi-thin slides of tooth and mandible of shot foxes and raccoon dogs were examined microscopically for the fluorescence of tetracycline deposits and blood samples for ELISA test were used in order to determine the efficiency of oral vaccination of wildlife.

Rabies has been widespread in the whole territory of the Republic of Lithuania. Wildlife rabies has enzootic pattern of the disease while urban rabies has been eradicated. Rabid wild animals are the main reservoir of this disease in a country and they course sporadic cases of rabies in domestic animals. Since 1960 eleven people have died of rabies: dogs infected two, foxes â€“ four, raccoon dogs â€“ two, badger â€“ one, cat â€“ one and the origin of the one case was unidentified. Aggressive dogs pose high risk of rabies to humans, because in each incident they could be considered as rabies-suspected animals.

The main reservoir species of rabies virus and the main animals distributing the disease were red foxes (Vulpes vulpes) and raccoon dogs (Nyctereutes procyonoides). Rabies is more widespread in wooden areas, but on the other hand wild predators moved as well into areas of human settlements.

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

The main reservoir species of rabies virus and the main animals distributing the disease were red foxes (Vulpes vulpes) and raccoon dogs (Nyctereutes procyonoides). Rabies is more widespread in wooden

areas, but on the other hand wild predators moved as well into areas of human settlements.

Recent actions taken to control the zoonoses

The long-term strategy for eradication of rabies in Lithuania contains the following elements:
-oral vaccination of wild animals, especially red foxes and raccoon dogs, with vaccine which should create sufficient immunity starting in the territory from the west and west-southern parts of Lithuania along the Baltic sea coast, the Nemunas river bank, at the Lithuanian-Kaliningrad region, Lithuanian-Polish and in the north at the Lithuanian-Latvian borders; for the effectiveness of vaccination campaign against rabies, it would be great advantage if all Baltic states and Poland start this campaign at the same time and coordinate their activities;
-rabies eradication campaign should last not less than 5-10 years;
-in order to keep Lithuanian territory free from rabies it is necessary to create a buffer zone at the border with Byelorussia and Kaliningrad region, where oral vaccination of wild animals should be continued for many years until the rabies will be eradicated in those countries;
-compulsory vaccination of dogs and cats;
-implementation of the identification and registration system for dogs and cats;
-control of the population of stray dogs and cats.

Suggestions to the Community for the actions to be taken

Rabies is a serious threat for human and animal health. The disease is widespread and endemic in the three Baltic States in wildlife and causes a significant number of cases in domestic animals.

1. Epidemiologically the three Baltic Member States can be considered as one region. The infection dynamics seems to be similar in all the three countries.

2. Previous vaccination programs carried out in two countries seems to be not sufficiently effective and should be thoroughly modified and improved in the future.

3. More structured and standardized information about the organization and the progress of the programs would be necessary.

4. The exchange of information among the three countries has been established.

5. Experiences in the field showed that the efficacy of used vaccine in raccoon dogs is similar to as that in foxes.

6. In all the three Baltic Member States the shortage of financial resources is major obstacle for implementation of a fully effective, cost efficient, large scale and long term eradication program.

7. In Lithuania the preparedness for controlling the rabies eradication programme in internationally accreditated laboratory is sufficient.

Recommendations

The Estonian, Latvian and Lithuanian authorities should consider the eradication of rabies as a priority.

1. The three Baltic Member States has to be regarded as one single area in the design of eradication strategies.

2. The necessary financial resources for large scale, long term vaccination programs should be made

available.

3. The collaboration has to be further developed among the three Baltic States and extended to the other neighboring countries.

4. An agreement should be reached among the neighboring countries to allow a mutual cross border vaccination.

2.11.2 Rabies in humans

A. Rabies in humans

Reporting system in place for the human cases

Reporting system is regulated according Health minister's order. Clinicist about suspected case informs territorial public healthcare institution and territorial public healthcare institution informs CCDPC and territorial food and veterinary services.

Case definition

Acute encephalomyelitis,detection by direct fluorescent antibody of viral antigens in a clinical specimen; detection of rabies nucleic acid in clinical specimen;isolation (in cell culture or in a laboratory animal) of rabies virus from saliva, cerebrospinal fluid (CSF), or central nervous system tissue;identification of a rabies-neutralising antibody titre (complete neutralisation) in the serum or CSF of an unvaccinated person.

Diagnostic/analytical methods used

Fluorescentic antibody test;
ELISA for Ab detection ;
Mouse infection method;
Cell culture method;
Serological investigation methods;
Virus neutralising method in cell cultures;
PCR;

Notification system in place

Every probable, suspected, or confirmed case is registered in personal healthcare institution according Health minister's order and is informed to territorial public healthcare institution where cases are registered. All detected cases are reported to the national level CCDPC and cases are registered in State register for communicable diseases.

History of the disease and/or infection in the country

Since 1960 to 2004 have been registered 11 fatal cases. 7 cases died from wild animals. 4 cases from domestic animal (cats, dogs). These people didn't applied for medical advice and therefore there wasn't administered immunoprophylaxis for them.

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

Yearly 8 â€“ 13 thousands of people, suffered from rabid dogs or dogs which are suspected to be rabid, search for a medical advice. Mostly inhabitants are injured by dogsâ€™ bites. 7 â€“ 8 thousands (63,8 â€“ 88.0%) of people which were suffered from dogsâ€™ bites, turned for a medical help during 1994 â€“ 2005. Yearly adults and children are been bite by healthy dogs (64,4 â€“ 65,0%), by unknown dogs (28,5 â€“ 30,5%), and by rabid dogs (4,5 â€“ 6,9%). Rabies immunoprophylaxis is being performed for 40,0 â€“ 59,5% of people , which were suffered from bites of rabid or suspected rabid dogs. In Lithuania 11 fatal cases of rabies were registered during 1960 â€“ 2004. These people were not applied for a medical help. Rabies Immunoprophylaxis was not intended for them.

2.11.3 Lyssavirus (rabies) in animals

A. Rabies in dogs

Monitoring system

Methods of sampling (description of sampling techniques)

The system for management of suspected rabies cases allows for rapid and effective integration between SFVS, private vets, public health and municipal authorities, with detailed records collected and municipal instructions issued for disease control and containment.
Euthanasia is practiced for suspected rabies cases, which is of concern given the potential risk for human and animal exposure and disease transmission. Euthanasia is recommended in the following situations:

â€¢All animals showing clinical signs suspicious of rabies
â€¢Non-vaccinated in-contact animals
â€¢In-contact animals showing evidence of a bite injury

If in-contact animals are not euthanased, the recommended observation period is 10 days.

Vaccination policy

According to the Lithuanian National Rabies prevention programme, vaccination of dogs and cats is compulsory and all domestic animals are vaccinated after contact with rabies-suspected animals.

The total number of vaccines given to dogs and cats has been increasing slightly since 1994, with approximately 203,570 vaccines administered to dogs and 29,540 to cats in 2004. Vaccination coverage of dogs is widely reported to be about 70% for dogs (similar to the ~ 65% levels reported to WHO, 1994) and 20% for cats (higher than the ~1% figure reported to WHO, 1994).

Each local community is responsible for stray animal control, with municipality regulations in place for capture of stray dogs and cats. Any dog or cat roaming around a community without a collar is deemed to be a stray and may be captured (usually with nets) and held in an animal shelter for 3-4 days while attempts are made to locate the owner (who bears any costs of the capture). If owners cannot be traced, the shelter will attempt to re-home the animal and, if unsuccessful, the animal will be euthanased. In Vilnius, the number of captured animals exceeds 150 dogs and 300 cats per month, with many kittens being brought in by the public. Stray animal control appears to operate in all the larger cities and municipalities in Lithuania.

Table Rabies in animals

	Source of information	Sampling unit	Units tested	Total units positive for Lyssavirus (rabies)	Lyssavirus, unspecified	Classical rabies virus (genotype 1)	European Bat Lyssavirus - unspecified
Badgers - wild	SFVS	Animal	8	1	1		
Cats	SFVS	Animal	103	1	1		
Cattle (bovine animals)	SFVS	Animal	41	8	8		
Deer - wild - roe deer	SFVS	Animal	21	0			
Dogs	SFVS	Animal	137	5	5		
Foxes - wild	SFVS	Animal	348	17	17		
Goats	SFVS	Animal	1	0			
Marten - wild	SFVS	Animal	81	1	1		
Raccoon dogs - wild	SFVS	Animal	315	28	28		
Sheep	SFVS	Animal	1	0			
Solipeds, domestic	SFVS	Animal	5	0			
Wolves - wild	SFVS	Animal	1	0			
Beavers ((surveillance))	SFVS	Animal	8	0			
Other animals	SFVS	Animal	32	1	1		
Polecats	SFVS	Animal	21	0			

2.12 Q-FEVER

2.12.1 General evaluation of the national situation

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1 ESCHERICHIA COLI, NON-PATHOGENIC

3.1.1 General evaluation of the national situation

3.1.2 Antimicrobial resistance in Escherichia coli, non-pathogenic

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulfonamides	Sulfonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Animals

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Penicillins	Ampicillin		8	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulfonamides	Sulfonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	
Penicillins	Ampicillin		8	

Table Cut-off values used for antimicrobial susceptibility testing of Escherichia coli, non-pathogenic in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Amphenicols	Chloramphenicol		16	
Tetracyclines	Tetracycline		8	
Fluoroquinolones	Ciprofloxacin		0.03	
Quinolones	Nalidixic acid		16	
Trimethoprim	Trimethoprim		2	
Sulfonamides	Sulfonamides		256	
Aminoglycosides	Streptomycin		16	
	Gentamicin		2	
Cephalosporins	Cefotaxim		0.25	
Penicillins	Ampicillin		8	

3.2 ENTEROCOCCUS, NON-PATHOGENIC

3.2.1 General evaluation of the national situation

3.2.2 Antimicrobial resistance in Enterococcus, non-pathogenic isolates

Table Cut-off values for antibiotic resistance of Enterococcus, non-pathogenic in Animals

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

Table Cut-off values for antibiotic resistance of Enterococcus, non-pathogenic in Food

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

Table Cut-off values for antibiotic resistance of Enterococcus, non-pathogenic in Feed

Test Method Used	Standard methods used for testing

			Concentration (microg/ml)	Zone diameter (mm)
		Standard	Resistant >	Resistant <=
Aminoglycosides	Streptomycin		512	
	Gentamicin		32	
Amphenicols	Chloramphenicol		32	
Penicillins	Ampicillin		4	
Glycopeptides (Cyclic peptides, Polypeptides)	Vancomycin		4	
Macrolides	Erythromycin		4	
Streptogramins	Quinupristin/Dalfopristin		32	
Tetracyclines	Tetracycline		2	
Oxazolidines	Linezolid		4	

4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS

4.1 ENTEROBACTER SAKAZAKII

4.1.1 General evaluation of the national situation

4.2 HISTAMINE

4.2.1 General evaluation of the national situation

4.2.2 Histamine in foodstuffs

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	Data from all Lithuanian laboratories for oficial control	Batch	2 kg	105	0	105			

4.3 STAPHYLOCOCCAL ENTEROTOXINS

4.3.1 General evaluation of the national situation

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 foodborne outbreaks

In case of foodborne outbreak occurs territorial Public Healthcare Institutions informs Centre for Communicable Diseases and AIDS and territorial State Food and Veterinary Services by phone in 2 hours, by fax or e-mail in 12 hours. Centre for Communicable Diseases and AIDS (CCDA) as soon as possible sends information about the outbreak to the Ministry of Health and State Public Health Service, informs Media.

Territorial Public Health Centres and territorial State Food and Veterinary Services investigate an outbreak and organize relevant measures. CCDA also gives methodological help. Microbiological investigation of specimens from suspected cases and sick people is performed in microbiology laboratories of hospitals and National Public Health Surveillance Laboratory; samples of suspected food - in National food and risk assessment Institute. 10 days after outbreak territorial public health institution sends final outbreak investigation material to CCDA. Health minister's orders regulate information providing on outbreaks and their investigation rules.By this legal act is legalised outbreak decision according to directive 2003/99/EC.

Description of the types of outbreaks covered by the reporting:

By the Ministry of Health routine all food borne outbreaks (family, extended and international) are registered in territorial public healthcare institutions and these institutions report to national level.

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

Registered number of outbreaks was similar during the last 5 years (2005 - 2009): 245 (1070 human cases)outbreaks were registered in 2005, 210 outbreaks and 1030 human cases in 2006, 196 outbreaks and 781 human cases in 2007, 228 outbreaks and 901 human cases in 2008, 175 outbreaks and 767 human cases in 2009.

The foodborne outbreaks epidemiological surveillance system is changed in Lithuania from 2005.

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

Main salmonellosis risk factors were poultry, eggs and their products in 2009. Among determined Salmonella outbreak risk factors poultry composed 14%, eggs - 12%, other poultry - 8%, other food or other dishes - 16%, undetermined food 50%.

Main trichinellosis outbreaks risk factors were meat from wild boars in 2009.

Relevance of the different type of places of food production and preparation in outbreaks

Among registered 175 outbreaks, 120 (68%) came from families, 55 (32%) were outspreaded in 2009. Among outspreaded outbreaks 23 (13%) were associated with acquired infection in kindergartens, 8 (4%) in food institutions, 8 (4%) were associated with private partys, 9 (5%) in other places.

Evaluation of the severity and clinical picture of the human cases

767 number of cases were registered during outbreaks in 2009, whereof 535 (70,0%) were hospitalized, no fatal cases registered.

293 cases were registered during salmonellosis outbreak (38% from general number of registered cases in outbreaks), 112 cases - during viral infection outbreaks (14%), 35 (5%) - during other indentified etiology outbreaks,114 (15%) - during trichinellosis outbreaks, 213 (28%) in other unidentified etiology outbreaks. Major number of cases in outbreaks was associated with salmonellosis infection and food-borne viruses in 2009.

Descriptions of single outbreaks of special interest

1-6/08/2009 62 people were applyed for medical care, 39 patients were hospitalized and 42 were investigated in laboratory. The Sea Festival has been celebrated in Klaipeda, which was the congress of people from various administrative areas of the country. During the festival, people subsisted on a temporary purpose, a catering venues. All those affected have pointed out the first one outdoor café - Berneliu uzeiga. Cause of the Salmonella Enteritidis outbreak was confirmed by a descriptive epidemiological investigation and laboratory tests - peas cooked with sauce sample was identical to the Salmonella enteritidis sick culture. It is assumed that additional factors have been - a cross-contamination of food and inadequate food storage.

Control measures or other actions taken to improve the situation

Territorial public healthcare institutions in liaise with territorial State food and veterinary services organize control, prevention measures, investigate foodborne outbreaks associated with food preparation subjects. Rights of these institutions are regulated by order of Ministry of Health.

Table Foodborne Outbreaks: summarised data

	Total number of outbreaks	Outbreaks	Human cases	Hospitalized	Deaths	Number of verified outbreaks
Bacillus	0	0	0	0	0	0
Campylobacter	2	2	8	8	0	0
Clostridium	0	0	0	0	0	0
Escherichia coli, pathogenic	1	1	3	0	0	0
Foodborne viruses	45	45	112	106	0	0
Listeria	0	0	0	0	0	0
Other agents	3	3	12	3	0	0
Parasites	2	0	0	0	0	2
Salmonella	50	44	171	125	0	6
Staphylococcus	2	2	4	4	0	0
Unknown	68	68	213	155	0	0
Yersinia	2	2	8	4	0	0

Table Verified Foodborne Outbreaks: detailed data for Parasites

Please use CTRL for multiple selection fields

Trichinella - T. spiralis

	Value
Code	
Outbreaks	1
Human cases	7
Hospitalized	5
Deaths	0
Foodstuff implicated	Other or mixed red meat and products thereof
More Foodstuff information	meat from wild boars
Type of evidence	Laboratory detection in human cases;Laboratory detection in implicated food
Outbreak type	General
Setting	Household
Place of origin of problem	unknown
Origin of foodstuff	unknown
Contributory factors	Other contributory factor
Other Agent (Mixed Outbreaks)	
Comment	

Trichinella - T. spiralis

	Value
Code	
Outbreaks	1
Human cases	107
Hospitalized	55
Deaths	0
Foodstuff implicated	Other or mixed red meat and products thereof
More Foodstuff information	meat from wild boars
Type of evidence	Laboratory detection in human cases;Laboratory detection in implicated food
Outbreak type	General
Setting	Household
Place of origin of problem	unknown
Origin of foodstuff	unknown
Contributory factors	Other contributory factor
Other Agent (Mixed Outbreaks)	
Comment	

Table Verified Foodborne Outbreaks: detailed data for Salmonella

Please use CTRL for multiple selection fields

S. Enteritidis

	Value
Code	
Outbreaks	1
Human cases	62
Hospitalized	39
Deaths	0
Foodstuff implicated	Other foods
More Foodstuff information	boiled pea with sauce
Type of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Mobile retailer, market/street vendor
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Cross-contamination
Other Agent (Mixed Outbreaks)	
Comment	

S. Enteritidis

	Value
Code	
Outbreaks	1
Human cases	11
Hospitalized	6
Deaths	0
Foodstuff implicated	Bakery products
More Foodstuff information	layer-cake
Type of evidence	Laboratory detection in human cases;Laboratory detection in implicated food
Outbreak type	General
Setting	Household
Place of origin of problem	unknown
Origin of foodstuff	Domestic
Contributory factors	Unknown
Other Agent (Mixed Outbreaks)	
Comment	

S. Enteritidis

	Value
Code	
Outbreaks	1
Human cases	18
Hospitalized	16
Deaths	0
Foodstuff implicated	Other foods
More Foodstuff information	liverwurst
Type of evidence	Laboratory detection in human cases;Laboratory detection in implicated food
Outbreak type	General
Setting	Household
Place of origin of problem	Other place of origin
Origin of foodstuff	Domestic
Contributory factors	Unknown
Other Agent (Mixed Outbreaks)	
Comment	

S. Enteritidis

	Value
Code	
Outbreaks	1
Human cases	10
Hospitalized	6
Deaths	0
Foodstuff implicated	Bakery products
More Foodstuff information	cakes
Type of evidence	Laboratory detection in human cases;Laboratory detection in implicated food
Outbreak type	General
Setting	Household
Place of origin of problem	Other place of origin
Origin of foodstuff	Domestic
Contributory factors	Unprocessed contaminated ingredient
Other Agent (Mixed Outbreaks)	
Comment	

S. Enteritidis

	Value
Code	
Outbreaks	1
Human cases	15
Hospitalized	1
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff information	
Type of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Take-away or fast-food outlet
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Unknown
Other Agent (Mixed Outbreaks)	
Comment	

S. Enteritidis

	Value
Code	
Outbreaks	1
Human cases	6
Hospitalized	2
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff information	
Type of evidence	Analytical epidemiological evidence
Outbreak type	General
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Unknown
Other Agent (Mixed Outbreaks)	
Comment	