



## LITHUANIA

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

### TRENDS AND SOURCES OF ZOONOSSES 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 2007

## **INFORMATION ON THE REPORTING AND MONITORING SYSTEM**

Country: **Lithuania**

Reporting Year: **2007**

## PREFACE

This report is submitted to the European Commission in accordance with Article 9 of Council Directive 2003/99/EC<sup>1</sup>. 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 2007. 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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<sup>1</sup> 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

Animal species	Category of animals	Number of herds or flocks		Number of slaughtered animals		Livestock numbers (live animals)		Number of holdings	
			Year*		Year*		Year*		Year*
Cattle (bovine animals)	dairy cows and heifers					395921		120982	
	mixed herds					94922		32009	
	in total			246678		771262		139181	
Ducks	in total					35800			
Gallus gallus (fowl)	breeding flocks, unspecified - in total					450500		15	
	laying hens					4385600		20	
	broilers					3636500		27	
Geese	in total					44200			
Goats	in total					6837		3490	
Pigs	in total			928701		632439		39387	
Sheep	in total					50330		3573	
Solipeds, domestic horses - in total				2078		60900			

## **2. INFORMATION ON SPECIFIC ZOOSES 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 its list. Clinician 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 clinician informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions register every case in standard form. In the end of every month data on morbidity of communicable diseases are summarised and sent 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, bordering 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 system:

a) standard media quality control procedures

b) standard antisera control procedures

c) standard antimicrobial susceptibility testing control procedures

External „PT“ 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 standardised 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 – 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 spp.	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified
Meat from poultry, unspecified	NVL	single	25g	190	16	16		

**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
<b>Cheeses made from cows' milk</b>								
- at retail	NVL	batch	25g	1	0			
<b>Dairy products (excluding cheeses)</b>	NVL	batch	25g	64	0			

Table Salmonella in red meat and products thereof

Meat from pig fresh - at slaughterhouse Meat from bovine animals and pig	Source of information										
	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.							
	S. Enteritidis	S. Typhimurium	Salmonella spp., unspecified	S. Agona	S. Derby	S. Bredeley	S. Infantis				
NVL	slaughter batch	25g	480	9	0	3	1	1	2	2	
NVL	single	25g	146	5	2		2				1

**2.1.4. Salmonella in animals****2.1.5. Salmonella in feedingstuffs****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
Compound feedingstuffs, not specified								
final product								
- Monitoring	NVL	batch	25 g	23	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. Typhimurium	Salmonella spp., unspecified
<b>Other feed material</b>								
other plants	NVL	batch	25 g	19	0			
<b>Premixtures</b>								
<b>final product</b>								
- Monitoring	NVL	batch	25 g	10	0			

**Table Salmonella in compound feedingstuffs**

	Source of information	Sampling unit	Sample weight	Units tested	Total units positive for Salmonella spp.	S. Typhimurium	S. Enteritidis	Salmonella spp., unspecified
Compound feedingstuffs for fur animal								
final product								
- in total - Monitoring	NVL	batch	25 g	45	0			



### **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.

### **2.1.7. Antimicrobial resistance in Salmonella isolates**

Antimicrobial resistance is the ability of certain microorganisms to survive or grow in the presence of a given concentration of antimicrobial agent that usually would kill or inhibit the microorganism species in question. Antimicrobial resistant Salmonella strains may be transferred from animals or foodstuffs to humans.

## **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 its list. Clinician 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 clinician informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions register every case in standard form. In the end of every month data on morbidity of communicable diseases are summarised and sent 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 bordering 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 system:

a) standard media quality control procedures

b) standard antimicrobial susceptibility testing control procedures

External „PT“ 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 registered 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 through 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 campylobacteriosis remains one of the dominant zoonosis in Lithuania.

**2.2.3. Campylobacter in foodstuffs****2.2.4. Campylobacter in animals****Table Campylobacter in animals**

	Source of information		Sampling unit	Units tested	Total units positive for thermophilic Campylobacter spp.	C. jejuni	C. coli	C. lari	C. upsaliensis	Thermophilic Campylobacter spp., unspecified
<b>Gallus gallus (fowl)</b>										
<b>broilers</b>										
- at farm	NVL	flock	8	2	2					

### **2.2.5. Antimicrobial resistance in Campylobacter isolates**

## **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 its list. Clinician 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 clinician informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions register every case in standard form. In the end of every month data on morbidity of communicable diseases are summarised and sent 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 bordering 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 normally sterile site: blood, or cerebrospinal fluid or joint, pleural or pericardial fluid.

#### **Diagnostic/ analytical methods used**

Methods used-

Bacteriological culture

Quality assurance procedures:

Internal quality control system:

a) standard media quality control procedures

b) standard antimicrobial susceptibility testing control procedures

External „PT“ 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****2.3.4. Listeria in animals****Table Listeria in animals**

	Source of information	Sampling unit	Units tested	Total units positive for Listeria spp.	L. monocytogenes	Listeria spp., unspecified	L. innocua
<b>Gallus gallus (fowl)</b>	NVL	flock	48	5	3		2

## **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.

**2.4.3. Escherichia coli, pathogenic in foodstuffs****2.4.4. Escherichia coli, pathogenic in animals****Table VT E. coli in animals**

	Source of information	Sampling unit	Sample weight	Units tested	Verotoxigenic E. coli (VTEC)	Verotoxigenic E. coli (VTEC) - VTEC O157	Verotoxigenic E. coli (VTEC) - VTEC non-O157	Verotoxigenic E. coli (VTEC) - VTEC, unspecified
<b>Cattle (bovine animals)</b>								
<b>meat production animals</b>								
- at slaughterhouse	NVL	batch	Swabs	96	0			

**2.5. TUBERCULOSIS, MYCOBACTERIAL DISEASES****2.5.1. General evaluation of the national situation****2.5.2. Tuberculosis, Mycobacterial Diseases in humans****2.5.3. Mycobacterium in animals****Table Tuberculosis in other animals**

	Source of information	Sampling unit	Units tested	Total units positive for Mycobacterium spp.	M. bovis	M. tuberculosis	Mycobacterium spp., unspecified
Pigs	NVL	single	6	0			

## **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 its list. Clinician 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 clinician informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions register every case in standard form and report 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 summarised and sent 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 bordering 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 brucellosis, 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 agglutination reaction with febrile Antigene.

Quality assurance procedures:

Internal quality control system: a) standard media quality control procedures b) standard antimicrobial susceptibility testing control procedures.

External „PT“ Quality Assessment Programmes. Labquality Helsinki Finland .

Reference: Mackie and McCartney „Practical medical microbiology“, 1996. Department of Health and Human Services “ Biosafety in microbiology and biomedical laboratories“, 1999. Yagupsky, P., et al. „Detection of brucellae in blood cultures“, 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 foodstuffs**

### **2.6.4. Brucella in animals**



## **2.7. YERSINIOSIS**

### **2.7.1. General evaluation of the national situation**

### **2.7.2. Yersiniosis in humans**

#### **A. Yersiniosis in humans**

##### **Reporting system in place for the human cases**

Health minister's order regulates information providing system on communicable diseases and its list. Clinician 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 clinician informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions register every case in standard form. In the end of every month data on morbidity of communicable diseases are summarised and sent 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 bordering 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 system:

- a) standard media quality control procedures
- b) standard antimicrobial susceptibility testing control procedures
- c) internal quality control procedures

External „PT“ 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 – 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 O3 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**

### **2.7.4. Yersinia in animals**

## **2.8. TRICHINELLOSIS**

### **2.8.1. General evaluation of the national situation**

### **2.8.2. Trichinellosis in humans**

### **2.8.3. Trichinella in animals**

## **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 its list. Clinician 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 clinician informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions register every case in standard form. In the end of every month data on morbidity of communicable diseases are summarised and sent 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 bordering 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 – 2005 data tendency of echinococcosis morbidity has been seen increasing. Incidence rate increased from 0,11/ 100 000 inhabitants in 2001 to 0,43/ 100 000 in 2004 – 2005. Mostly the source of this infection is remaining unknown (53 %).

### **2.9.3. Echinococcus in animals**

## **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 its list. Clinician 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 clinician informs territorial public healthcare institution in 12 hours. Territorial public healthcare institutions register every case in standard form. In the end of every month data on morbidity of communicable diseases are summarised and sent 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 bordering 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, demonstration 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 avidity;

Enzyme linked immunosorbent assay (ELISA) IgM;

Immunosorbent agglutination assay (ISAGA) IgA and IgM;

Toxoplasmosis Western Blot IgG and IgM.

Quality assurance procedures:

Internal quality control procedures

External „PT“ Quality Assessment Programmes.

“Labquality”, 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 register in 1992. Since 1999 it started to register congenital toxoplasmosis.



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

During the 2001 – 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 toxoplasmosis.

### **2.10.3. Toxoplasma in animals**

## **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 – four, raccoon dogs – two, badger – one, cat – 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 accredited 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. Clinician 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**

Fluorescent 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 – 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 dogs' bites. 7 – 8 thousands (63,8 – 88,0%) of people which were suffered from dogs' bites, turned for a medical help during 1994 – 2005. Yearly adults and children are been bite by healthy dogs (64,4 – 65,0%), by unknown dogs (28,5 – 30,5%), and by rabid dogs (4,5 – 6,9%). Rabies immunoprophylaxis is being performed for 40,0 – 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 – 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:

- All animals showing clinical signs suspicious of rabies
- Non-vaccinated in-contact animals
- 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.



## **2.12. Q-FEVER**

### **2.12.1. General evaluation of the national situation**

### **2.12.2. Coxiella (Q-fever) in animals**

### **3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE**

### **3.1. ENTEROCOCCUS, NON-PATHOGENIC**

#### **3.1.1. General evaluation of the national situation**

### **3.1.2. Antimicrobial resistance in Enterococcus, non-pathogenic isolates**

### **3.2. *ESCHERICHIA COLI, NON-PATHOGENIC***

#### **3.2.1. General evaluation of the national situation**

### **3.2.2. Antimicrobial resistance in *Escherichia coli*, non-pathogenic isolates**

## **4. INFORMATION ON SPECIFIC MICROBIOLOGICAL AGENTS**

#### **4.1. HISTAMINE**

##### **4.1.1. General evaluation of the national situation**

##### **4.1.2. Histamine in foodstuffs**



## **4.2. ENTEROBACTER SAKAZAKII**

### **4.2.1. General evaluation of the national situation**

### **4.2.2. Enterobacter sakazakii in foodstuffs**

#### **4.3. STAPHYLOCOCCAL ENTEROTOXINS**

##### **4.3.1. General evaluation of the national situation**

##### **4.3.2. Staphylococcal enterotoxins in foodstuffs**

## **5. FOODBORNE OUTBREAKS**

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, epidemiological investigations and reporting of foodborne outbreaks**

In case of foodborne outbreak occurs territorial Public Health Centre informs Centre for Communicable Diseases Prevention and Control (CCDPC) and territorial State Food and Veterinary Services by phone in 2 hours, by fax or e-mail in 12 hours. CCDPC 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. CCDPC also gives methodological help. Microbiological investigation of specimens from suspected cases and sick people is performed in microbiology laboratories of hospitals and Public Health Centres; samples of suspected food - in laboratories of State Food and Veterinary Service. 10 days after outbreak territorial public health institution sends final outbreak investigation material to CCDPC. Health minister's orders regulate information providing on outbreaks and their investigation rules.

#### **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 3 years (2005–2007): 244 outbreaks were registered in 2005, 207–in 2006, 196–in 2007. However registered number of outbreaks decreased 19,7% in 2007 comparing data 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 2007. Among determined Salmonella outbreak risk factors poultry composed 33%, eggs–14%, other poultry–2%, other food or other dishes–29%, undetermined food–22%.

Trichinellosis outbreaks risk factors: one was caused by home pork, other–by undetermined food.

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

Among registered 196 outbreaks, 126 (64,4%) came from families, 70 (35,6%) were outspreaded in 2007. Among outspreaded outbreaks 32 (46,4%) were associated with acquired infection in kindergartens, 17 (24,6%)–in food institutions, 6 (8,7%)–social caring institutions, 15 (20,3%)–in other places.

### **Evaluation of the severity and clinical picture of the human cases**

781 number of cases were registered during outbreaks in 2007, whereof 465 (60,0%) were hospitalized, no fatal cases registered.

328 cases were registered during salmonellosis outbreak (42,4% from general number of registered cases in outbreaks), 104 cases—during viral infection outbreaks (13,4%), 38 (4,9%)—during shigellosis outbreaks, 173 (22,1%) in other unidentified etiology outbreaks. Major number of cases in outbreaks was associated with salmonellosis infection in 2007.

### **Descriptions of single outbreaks of special interest**

### **Control measures or other actions taken to improve the situation**

Territorial public health centres in liaison with 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.

**Foodborne Outbreaks: summarized data**

	Total number of outbreaks	Number of possible outbreaks	Number of verified outbreaks
Bacillus	0	0	0
Campylobacter	4	4	0
Clostridium	0	0	0
Escherichia coli, pathogenic	2	2	0
Foodborne viruses	43	43	0
Listeria	0	0	0
Other agents	18	18	0
Parasites	2	1	1
Salmonella	58	52	6
Staphylococcus	3	3	0
Unknown	62	59	3
Yersinia	4	4	0

## Verified Foodborne Outbreaks: detailed data

### Trichinella

Value

Code	0007LT
Subagent Choice	Parasites; Trichinella; T. spiralis
Outbreak type	General
Human cases	6
Hospitalized	6
Deaths	0
Foodstuff implicated	Pig meat and products thereof
More Foodstuff	
Type of evidence	Laboratory detection in implicated food
Setting	Household
Place of origin of problem	Slaughterhouse
Origin of foodstuff	Domestic
Contributory factors	Unknown
Outbreaks	1
Comment	

**S. Enteritidis**

Value

Code	0003LT
Subagent Choice	
Outbreak type	General
Human cases	13
Hospitalized	7
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Cross-contamination
Outbreaks	1
Comment	

**S. Enteritidis**

Value

Code	0005LT
Subagent Choice	
Outbreak type	General
Human cases	44
Hospitalized	4
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	
Type of evidence	Analytical epidemiological evidence
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Cross-contamination
Outbreaks	1
Comment	



**S. Enteritidis**

Value

Code	0004LT
Subagent Choice	
Outbreak type	General
Human cases	22
Hospitalized	11
Deaths	0
Foodstuff implicated	Broiler meat (Gallus gallus) and products thereof
More Foodstuff	
Type of evidence	Analytical epidemiological evidence
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Inadequate heat treatment
Outbreaks	1
Comment	

**S. Enteritidis**

Value

Code	0001LT
Subagent Choice	Salmonella; S. Enteritidis; 1
Outbreak type	General
Human cases	14
Hospitalized	7
Deaths	0
Foodstuff implicated	Broiler meat (Gallus gallus) and products thereof
More Foodstuff	
Type of evidence	Analytical epidemiological evidence
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Inadequate heat treatment
Outbreaks	1
Comment	

**S. Enteritidis**

Value

Code	0006LT
Subagent Choice	
Outbreak type	General
Human cases	19
Hospitalized	10
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	
Type of evidence	Analytical epidemiological evidence
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Cross-contamination
Outbreaks	1
Comment	

**S. Enteritidis**

Value

Code	0002LT
Subagent Choice	
Outbreak type	General
Human cases	14
Hospitalized	3
Deaths	0
Foodstuff implicated	Mixed or buffet meals
More Foodstuff	
Type of evidence	Analytical epidemiological evidence
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Catering services, restaurant
Origin of foodstuff	Domestic
Contributory factors	Inadequate heat treatment
Outbreaks	1
Comment	

**Unknown**

Value

Code	0010LT
Subagent Choice	
Outbreak type	General
Human cases	10
Hospitalized	0
Deaths	0
Foodstuff implicated	Other foods
More Foodstuff	
Type of evidence	Analytical epidemiological evidence
Setting	Household
Place of origin of problem	Unknown
Origin of foodstuff	Unknown
Contributory factors	Storage time/temperature abuse
Outbreaks	1
Comment	

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**Unknown**

Value

Code	0009LT
Subagent Choice	
Outbreak type	General
Human cases	17
Hospitalized	2
Deaths	0
Foodstuff implicated	Unknown
More Foodstuff	
Type of evidence	Analytical epidemiological evidence
Setting	School, kindergarten
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Unknown
Outbreaks	1
Comment	

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**Unknown**

Value

Code	0008LT
Subagent Choice	
Outbreak type	General
Human cases	5
Hospitalized	0
Deaths	0
Foodstuff implicated	Broiler meat (Gallus gallus) and products thereof
More Foodstuff	
Type of evidence	Laboratory detection in implicated food
Setting	Restaurant, Cafe, Pub, Bar, Hotel
Place of origin of problem	Unknown
Origin of foodstuff	Domestic
Contributory factors	Inadequate chilling
Outbreaks	1
Comment	