ZOONOSES MONITORING

SLOVAKIA

The Report referred to in Article 5 of Directive 92/117/EEC

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

including information on foodborne outbreaks and antimicrobial resistance in zoonotic agents

IN 2004

INFORMATION ON THE REPORTING AND MONITORING SYSTEM

Country: **Slovakia**

Reporting Year: **2004**

Institutions and laboratories involved in monitoring:

Laboratory name	Description	Contribution
State Veterinary and Food Administration of the Slovak Republik	SVFA manage, direct and control the exercise of state administration by the regional and district veterinary and food administrations, Control Institute of veterinary drugs, state veterinary laboratories	reporting authority

State Veterinary and Food Institutes - SVFI carry out laboratory analyses, laboratory diagnostics and testing of official samples taken at veterinary check and controls of foodstuffs, feedingstuffs and animal health and provide the services of laboratory diagnostics and testing

State Veterinary Institute - SVI carry out laboratory analyses, laboratory diagnostics and testing of official samples taken at veterinary checks and controls specialised in the laboratory diagnostics of animal health

PREFACE

This report is submitted to the European Commission in accordance with Article 5 of Council Directive 92/117/EEC[1]. 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 Slovakia during the year 2004. 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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1 Council Directive 92/117/ECC of 17 December 1992 concerning measures for protection against specified zoonoses and specified zoonotic agents in animals and products of animal origin in order to prevent outbreaks of foodborne infections and intoxications, OJ L 62, 15.3.1993, p. 38

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1. ANIMAL POPULATIONS

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

A. Information on susceptible animal population

Sources of information:

Central Evidence of Animals, statistics, District Veterinary and Food Administrations in the Slovak Republic

Table 14.1 Susceptible animal populations: number of herds and holdings rearing animals

* Only if different than current reporting year

Animal species	Category of animals	Number of herds or flocks	Year*	Number of holdings	Year*
Cattle (bovine animals)	in total			18312	
Ducks	in total (1)				
Gallus gallus	in total (2)				
Geese	in total (3)				
Goats	in total			489	
Pigs	in total			6326	
Sheep	in total			4129	
Solipeds	horses - in total (4)				
Turkeys	in total (5)				

(1): no data available
(2): no data available
(3): no data available
(4): no data available
(5): no data available

Table 14.2 Susceptible animal populations: number of animals

* Only if different than current reporting year

Animal species	Category of animals	Livestock numbers (live animals)	Year*	Number of slaughtered animals	Year*
Cattle (bovine animals)	calves (under 1 year)	132339		2837	
	dairy cows and heifers			65923	
	meat production animals			37325	
	in total	559054		109248	
Ducks	elite birds	550			
	parent birds	3000			
	meat production animals	6000			
	breeding animals - in total	2450			
	in total	9000			
Gallus gallus	breeding animals - in total	880000			
	parent birds - in total	880000			
	breeding animals for egg production line - in total	150000			
	broilers	20800000		58052633	
	laying hens	2500000		1773111	
	parent birds for meat production line	730000			
	parent birds for egg production line	150000			
	breeding animals for meat production line - in total	730000			
	in total	25580000		59841935	
Geese	in total	6000			
Goats	animals over 1 year	2083			
	animals under 1 year	216			
	meat production animals			25	
	in total	2299		25	
Pigs	sows and gilts	70523		35282	
	fattening pigs			1253625	
	in total	2230707		1288907	
Sheep	milk ewes			7568	
	animals over 1 year	204063		7568	
	animals under 1 year (lambs)	57206		75459	
	in total	261269		83027	
Solipeds	horses - in total			5	
Turkeys	parent birds	47000			
	meat production animals	103000			
	breeding animals - in total	47000			
	in total	150000			

2. INFORMATION ON SPECIFIC ZOONOSES AND ZOONOTIC AGENTS

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

2.1. SALMONELLOSIS

2.1.1. General evaluation of the national situation

A. General evaluation

History of the disease and/or infection in the country

Up to the year 1989 the serovar Salmonellla typhimurium had prevalence, after 1989 in the animal health the increasing trend has Salmonella enteritidis and this trend is maintained till now.
Out of the total number of examinated samples of animals the salmonelosis agent was isolated as follows
2000 2,8 %
2001 2,4%
2002 0,9%
2003 0,8% samples.
The highest detection in most animals has Salmonella enteritidis, except for pigs, in which dominates species-specific serovar Salmonella choleraesuis.
Out the number of the positive samples of the finding of Salmonella enteritidis and salmonella typhimurium was as following:
S.enteritidis S. typhimurium
2000 71,7% 3,3%
2001 70,7% 2,1%
2002 66,0% 2,4%
2003 62,0% 0,8%
In the poultry not only the highest number of positive samples but also the greatest number of serovars is recorded.
Number of isolated serovars
2000 2001 2002 2003
Fowl 9 7 7 4
Turkey 11 11 7 3
Ducks 3 - 1 -
Geese 2 - 2 1

2.1.2. Salmonellosis in humans

A. Salmonellosis in humans

Reporting system in place for the human cases

Physician shall report each suspect case mandatory and microbiological laboratory report each positive sample.

Case definition

in accordance with decision No 2119/98/EC-C/32002/1043- Case definition for communicable diseases listed in decision 2000/96/EC- Clinical picture compatible with salmonellosis, e.g. diarrhoea, abdominal pain, nausea, and vomiting. The organism may cause extraintestinal infections.

Diagnostic/analytical methods used

isolation of Salmonella (non-typhi, non-paratyphi) from clinical specimen

History of the disease and/or infection in the country

Salmonellosis has been reported in Slovakia since 1975, historical data do exist since this date.

Results of the investigation

To the end of the 80-ties, the most prevalent serotype of salmonella was S.typhimurium, infantis, from the 90- ties, the most prevalent serotype has been S. enteritidis.

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

Trend of salmonellosis increased to 1998, since 1998 slowly decreased. For many years, the highest age-specific incidence in children is up to 1 year of age. Eggs and egg products and poultry meet are the most relevant risk factor of transmission.

Table 3.4.1.A Salmonellosis in man - species/serotype distribution

Salmonella	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc	unknown status
	12667	233	12622	233	43	0	2
S. Enteritidis	11223	208,6	11192	208,03	29	0,5	2
S. Typhimurium	153	2,8438	152	2,8253	1	0,0	0
other serovars	1291	23,996	1278	23,754	13	0,2	0

Table 3.4.1.B Salmonellosis in man - age distribution

Age Distribution	S. Enteritidis			S. Typhimurium			Salmonella spp.		
	All	M	F	All	M	F	All	M	F
<1 year	679	373	306	22	12	10	739	414	325
1 to 4 years	2390	1312	1078	40	24	16	2574	1416	1158
5 to 14 years	2298	1298	1039	32	24	8	2575	1413	1162
15 to 24 years	1554	80	754	15	8	7	1714	884	830
25 to 44 years	2153	977	1176	22	11	11	2564	1184	1380
45 to 64 years	1432	550	882	13	5	8	1666	664	1002
65 years and older	717	233	484	9	4	5	835	284	551
Age unknown	0	0	0	0	0	0	0	0	0
Total :	11223	4823	5719	153	88	65	12667	6259	6408

Table 3.4.2 Salmonellosis in man - seasonal distribution

Month	S. Enteritidis	S. Typhimurium	Salmonella spp.
	Cases	Cases	Cases
January	418	1	452
February	320	3	365
March	358	3	397
April	661	12	742
May	812	10	906
June	1056	12	1160
July	1269	25	1397
August	1490	25	1626
September	1720	25	1998
October	1198	11	1360
November	1072	10	1212
December	849	16	1052
not known	0	0	0
Total :	11223	153	12667

2.1.3. Salmonella in foodstuffs

Table 3.3.1 Salmonella sp. in meat and meat products

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	other serovars
Bovine meat									
fresh									
- at slaughter	SVFI			1 g	166	1	1		
Pig meat									
fresh									
- at slaughter	SVFI			1 g	537	1			
meat products									
non-ready-to-eat									
- at retail (2)	SVFI			1 g		2		1	1
Broiler meat									
fresh									
- at slaughter	SVFI			1 g	24	1	1		
- at retail (1)	SVFI			25 g		4	3		1
Other meat									
fresh									
- at slaughter	SVFI			1 g	11				
Other animals or mixed meat									
meat products									
non-ready-to-eat									
- at retail	SVFI			25 g	576				
ready-to-eat									
- at retail	SVFI			25 g	6458				

(1) : other serovars = S. enterica
(2) : other serovars = S. enterica

Table 3.3.2 Salmonella sp. in other food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Montevideo	S. Bareilly
cow milk										
raw	SVFI			25 ml	1994					
heat-treated	SVFI			25 ml	626					
Dairy products										
ready-to-eat	SVFI			25 g	6659					
Table eggs										
- at retail	SVFI			25 g	486	6	6			
Egg products	SVFI			25 g	1618	6			6	
Fishery products	SVFI			25 g	478					
fish	SVFI			25 g	407					
Honey	SVFI			25 g	102					
Fruit & Vegetables										
fruit and vegetable products	SVFI			25 g	380					
Confectionery products and pastes										
pastes	SVFI			25 g	611	6	2			4

2.1.4. Salmonella in animals

A. Salmonella spp. in Gallus gallus - breeding flocks for egg production and flocks of laying hens

Monitoring system

Sampling strategy

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

One-day-old chickens: meconium sampling from walls inside the boxes by which the chickens were sent to the holding and dead chickens at the time on their arrival at the holding;
Rearing period: at the age of four weeks and two weeks before onset of laying in young hens;
Production period: every two weeks during the laying period, every eight weeks the official sampling.
In the Slovac Republic there are not existing the elite and grandparent flocks.

Laying hens flocks

One-day-old chickens: meconium sampling from walls inside the boxes by which the chickens were sent to the holding and dead chickens;
Rearing period: at the age of four weeks and two weeks before onset of laying in young hens;
Production period: every two weeks during the laying period;
Before slaughter at farm: two weeks before slaughter;
At slaughter: monitoring is not performed;
Eggs at packing centre:(flock based approach): monitoring is not performed.

Frequency of the sampling

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

Other: meconium sampling from walls inside the boxes by which the chickens were sent to the holding and dead chickens

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

Other: the sample is composed of individual fresh excrement samples, each weighing at least one gram, it is taken from randomly selected points in house, in specified amount according to the number of birds in the flock

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

Other: 1) in hatcheries incubating eggs in a hatchery with total incubation capacity of thousand eggs and more: a)commingle samples of meconium taken from 250 chickens hatched from the eggs sent to the hatchery from each breeding/reproductive flock; b)samples of 50 dead embryos dead in-shell, or chickens hatched from the eggs sent to the hatchery from each breeding flock; 2) in holdings incubating eggs in a hatchery with total incubation capacity less than thousand eggs; the sample is composed of individual fresh excrement samples, each weighing at least one gram, it is taken from randomly selected points in house, in specified amount according to the number of birds in the flock.

Type of specimen taken

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

Other: meconium sampling from walls inside the boxes by which the chickens were sent to the holding and dead chickens

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

Other: the sample is composed of individual fresh excrement samples, each weighing at least one gram, it is taken from randomly selected points in house, in specified amount according to the number of birds in the flock

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

Other: 1) in hatcheries incubating eggs in a hatchery with total incubation capacity of thousand eggs and more: a)commingle samples of meconium taken from 250 chickens hatched from the eggs sent to the hatchery from each breeding/reproductive flock; b) samples of 50 dead embryos dead in-shell, or chickens hatched from the eggs sent to the hatchery from each breeding flock; 2) in holdings incubating eggs in a hatchery with total incubation capacity less than thousand eggs; the sample is composed of individual fresh excrement samples, each weighing at least one gram, it is taken from randomly selected points in house, in specified amount according to the number of birds in the flock.

Laying hens: Day-old chicks

Other: meconium sampling from walls inside the boxes by which the chickens were sent to the holding and dead chickens

Laying hens: Rearing period

Other: the sample is composed of individual fresh excrement samples, each weighing at least one gram, it is taken from randomly selected points in house, in specified amount according to the number of birds in the flock

Laying hens: Production period

Other: the sample is composed of individual fresh excrement samples, each weighing at least one gram, it is taken from randomly selected points in house, in specified amount according to the number of birds in the flock

Laying hens: Before slaughter at farm

Other: the sample is composed of individual fresh excrement sampleseach weighing at least one gram, it is taken from randomly selected points in house, in specified amount according to the number of birds in the flock

Diagnostic/analytical methods used

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

Bacteriological method: STN EN ISO 6579

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

Bacteriological method: STN EN ISO 6579

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

Bacteriological method: STN EN ISO 6579

Laying hens: Day-old chicks

Bacteriological method: STN EN ISO 6579

Laying hens: Rearing period

Bacteriological method: STN EN ISO 6579

Laying hens: Production period

Bacteriological method: STN EN ISO 6579

Laying hens: Before slaughter at farm

Bacteriological method: STN EN ISO 6579

Vaccination policy

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

In 2004, the vaccination of poultry breeding flocks by inactivated and live marker vaccines registered by the Institute for State Control of Veterinary Biologicals and Medicaments in Nitra was permitted in the Slovak Republic.

Laying hens flocks

In 2004, the vaccination of poultry breeding flocks by inactivated and live marker vaccines registered by the Institute for State Control of Veterinary Biologicals and Medicaments in Nitra was permitted in the Slovak Republic.

Control program/mechanisms

Recent actions taken to control the zoonoses

- The control programs:
Pursuant to the Ordinance of the Government of the Slovak Republic No. 297/2003 Coll., each poultry holding shall be registered based on the allocation of official number and it is over the control of the competent DVFA. A part of supervision executed by the competent veterinary administration authority is the control over the observation of the National Eradication Program for salmonella infections in poultry flocks.
- Measures in case of the positive findings or single cases:
A.Poultry breeding/reproductive flocks and hatcheries
The measures shall be in compliance with the minimum requirements listed below:
1)If, after an investigation in compliance with the monitoring, the presence of Salmonella enteritidis or Salmonella typhimurium in poultry inside the house has been confirmed, then the measures listed below shall be implemented:
a)no piece of poultry is allowed to leave the house, except for the permission of competent authority for the purposes of controlled killing and safe disposal or slaughtering in slaughterhouse stipulated by the competent authority according to the letter c);
b)non-incubated eggs produced by birds from the concerned house shall be safely disposed of on the spot or after their suitable marking shall be under control delivered at facility approved for egg processing in order to treat the eggs by heat in compliance with the requirements of the peculiar rule;
c)all birds in house shall be killed in compliance with the requirements of the peculiar rule, the official veterinarian of slaughterhouse is supplied by information on decision of killing in compliance with requirements of the peculiar rule or the birds shall be killed and safely disposed of in a way that maximum decrease the risk of salmonella spreading.
2)After unloading the flock infected by Salmonella enteritidis or Salmonella typhimurium, the complete cleaning and disinfection of the house shall be performed, including safe disposal of excrements or litter in compliance with the method stipulated by the competent veterinary administration authority. Chicken restocking shall be in compliance with the requirements of the point Monitoring 2.A.1.
3)If the hatching eggs produced by the flocks, wherein the presence of Salmonella enteritidis or Salmonella typhimurium has been confirmed, are being in the hatchery, then they should be safely disposed of or treated as a very hazardous material in compliance with the peculiar rule.

Notification system in place

A.The results of all negative investigations in the rearing flocks, breeding flocks and hatcheries are notified by the state veterinary laboratories in the SR to the competent District Veterinary and Food Administrations. On the given date, the monthly report on findings is reported by the District Veterinary and Food Administrations to the State Veterinary and Food Administration of the SR (for information, the reports are also sent to the Regional Veterinary and Food

Administration).
B.If, after the monitoring in compliance with the point 1, the presence of Salmonella enteritidis or Salmonella typhimurium in breeding/reproductive flock has been detected, the person responsible for the laboratory performing the investigation, person performing the investigation or the owner of the flock shall immediately report the results to the competent District Veterinary and Food Administration.
C.All positive results of investigations, carried out in compliance with the point 8, are sent to the competent District Veterinary and Food Administration and State Veterinary and Food Administration of the SR.

B. Salmonella spp. in Gallus gallus - breeding flocks for meat production and broiler flocks

Monitoring system

Sampling strategy

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

In the breeding flocks of meat lines, the same monitoring system is applied as in the poultry laying flocks.

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

Monitoring system

Sampling strategy

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

In 2004, the National Eradication Program for salmonella infections in poultry flocks within the Slovak Republic was also introduced into turkeys and waterfowl flocks, with the same monitoring system, sampling strategy, sampling frequency, types of samples, sampling methods, diagnostic methods and control mechanisms.

Meat production flocks

In 2004, the National Eradication Program for salmonella infections in poultry flocks within the Slovak Republic was also introduced into turkeys and waterfowl flocks, with the same monitoring system, sampling strategy, sampling frequency, types of samples, sampling methods, diagnostic methods and control mechanisms.

Vaccination policy

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

In the Slovak Republic, the vaccination of turkeys and waterfowl has not been performed.

Meat production flocks

In the Slovak Republic, the vaccination of turkeys and waterfowl has not been performed.

Measures in case of the positive findings or single cases

The measures shall be in compliance with the minimum requirements listed below:
1)If, after an investigation in compliance with the monitoring, the presence of Salmonella enteritidis or Salmonella typhimurium in poultry inside the house has been confirmed, then the measures listed below shall be implemented:
a)no piece of poultry is allowed to leave the house, except for the permission of competent authority for the purposes of controlled killing and safe disposal or slaughtering in slaughterhouse stipulated by the competent authority according to the letter c);
b)non-incubated eggs produced by birds from the concerned house shall be safely disposed of on the spot or after their suitable marking shall be under control delivered at facility approved for egg processing in order to treat the eggs by heat in compliance with the requirements of the peculiar rule;
2)After unloading the flock infected by Salmonella enteritidis or Salmonella typhimurium, the complete cleaning and disinfection of the house shall be performed, including safe disposal of excrements or litter in compliance with the method stipulated by the competent veterinary administration authority. Chicken restocking shall be in compliance with the requirements of the point Monitoring 2.A.1.
3)If the hatching eggs produced by the flocks, wherein the presence of Salmonella enteritidis or Salmonella typhimurium has been confirmed, are being in the hatchery, then they should be safely disposed of or treated as a very hazardous material in compliance with the peculiar rule.

Notification system in place

- The results of all negative investigations in the rearing flocks, breeding flocks and hatcheries are notified by the state veterinary laboratories in the SR to the competent District Veterinary and Food Administrations. On the given date, the monthly report on findings is reported by the District Veterinary and Food Administrations to the State Veterinary and Food Administration of the SR (for information, the reports are also sent to the Regional Veterinary and Food Administration).
- If, after the monitoring in compliance with the point 1, the presence of Salmonella enteritidis or Salmonella typhimurium in breeding/reproductive flock has been detected, the person responsible for the laboratory performing the investigation, person performing the investigation or the owner of the flock shall immediately report the results to the competent District Veterinary and Food Administration.
- All positive results of investigations, carried out in compliance with the point 8, are sent to the competent District Veterinary and Food Administration and State Veterinary and Food Administration of the SR.

D. Salmonella spp in geese - breeding flocks and meat production flocks

Monitoring system

Sampling strategy

Breeding flocks

In 2004, the National Eradication Program for salmonella infections in poultry flocks within the Slovak Republic was also introduced into turkeys and waterfowl flocks, with the same monitoring system, sampling strategy, sampling frequency, types of samples, sampling methods, diagnostic methods and control mechanisms.

Vaccination policy

Breeding flocks

In the Slovak Republic, the vaccination of turkeys and waterfowl has not been performed.

Meat production flocks

In the Slovak Republic, the vaccination of turkeys and waterfowl has not been performed.

Measures in case of the positive findings or single cases

Breeding flocks

The measures shall be in compliance with the minimum requirements listed below:
1)If, after an investigation in compliance with the monitoring, the presence of Salmonella enteritidis or Salmonella typhimurium in poultry inside the house has been confirmed, then the measures listed below shall be implemented:
a)no piece of poultry is allowed to leave the house, except for the permission of competent authority for the purposes of controlled killing and safe disposal or slaughtering in slaughterhouse stipulated by the competent authority according to the letter c);
b)non-incubated eggs produced by birds from the concerned house shall be safely disposed of on the spot or after their suitable marking shall be under control delivered at facility approved for egg processing in order to treat the eggs by heat in compliance with the requirements of the peculiar rule;
2)After unloading the flock infected by Salmonella enteritidis or Salmonella typhimurium, the complete cleaning and disinfection of the house shall be performed, including safe disposal of excrements or litter in compliance with the method stipulated by the competent veterinary administration authority. Chicken restocking shall be in compliance with the requirements of the point Monitoring 2.A.1.
3)If the hatching eggs produced by the flocks, wherein the presence of Salmonella enteritidis or Salmonella typhimurium has been confirmed, are being in the hatchery, then they should be safely disposed of or treated as a very hazardous material in compliance with the peculiar rule.

Meat Production flocks

The measures shall be in compliance with the minimum requirements listed below:
1)If, after an investigation in compliance with the monitoring, the presence of Salmonella enteritidis or Salmonella typhimurium in poultry inside the house has been confirmed, then the measures listed below shall be implemented:
a)no piece of poultry is allowed to leave the house, except for the permission of competent authority for the purposes of controlled killing and safe disposal or slaughtering in slaughterhouse stipulated by the competent authority according to the letter c);
b)non-incubated eggs produced by birds from the concerned house shall be safely disposed of on the spot or after their suitable marking shall be under control delivered at facility approved for egg processing in order to treat the eggs by heat in compliance with the requirements of the peculiar rule;
2)After unloading the flock infected by Salmonella enteritidis or Salmonella typhimurium, the complete cleaning and disinfection of the house shall be performed, including safe disposal of excrements or litter in compliance with the method stipulated by the competent veterinary administration authority. Chicken restocking shall be in compliance with the requirements of the point Monitoring 2.A.1.
3)If the hatching eggs produced by the flocks, wherein the presence of Salmonella enteritidis or Salmonella typhimurium has been confirmed, are being in the hatchery, then they should be safely disposed of or treated as a very hazardous material in compliance with the peculiar rule.

Notification system in place

- The results of all negative investigations in the rearing flocks, breeding flocks and hatcheries are notified by the state veterinary laboratories in the SR to the competent District Veterinary and Food Administrations. On the given date, the monthly report on findings is reported by the District Veterinary and Food Administrations to the State Veterinary and Food Administration of the SR (for information, the reports are also sent to the Regional Veterinary and Food Administration).
- If, after the monitoring in compliance with the point 1, the presence of Salmonella enteritidis or Salmonella typhimurium in breeding/reproductive flock has been detected, the person responsible for the laboratory performing the investigation, person performing the investigation or the owner of the flock shall immediately report the results to the competent District Veterinary and Food Administration.
- All positive results of investigations, carried out in compliance with the point 8, are sent to the competent District Veterinary and Food Administration and State Veterinary and Food Administration of the SR.

E. Salmonella spp in ducks - breeding flocks and meat production flocks

Monitoring system

Sampling strategy

Breeding flocks

In 2004, the National Eradication Program for salmonella infections in poultry flocks within the Slovak Republic was also introduced into turkeys and

waterfowl flocks, with the same monitoring system, sampling strategy, sampling frequency, types of samples, sampling methods, diagnostic methods and control mechanisms.

Vaccination policy

Breeding flocks

In the Slovak Republic, the vaccination of turkeys and waterfowl has not been performed.

Measures in case of the positive findings or single cases

The measures shall be in compliance with the minimum requirements listed below:
1) If, after an investigation in compliance with the monitoring, the presence of Salmonella enteritidis or Salmonella typhimurium in poultry inside the house has been confirmed, then the measures listed below shall be implemented:
a) no piece of poultry is allowed to leave the house, except for the permission of competent authority for the purposes of controlled killing and safe disposal or slaughtering in slaughterhouse stipulated by the competent authority according to the letter c);
b) non-incubated eggs produced by birds from the concerned house shall be safely disposed of on the spot or after their suitable marking shall be under control delivered at facility approved for egg processing in order to treat the eggs by heat in compliance with the requirements of the peculiar rule;
2)After unloading the flock infected by Salmonella enteritidis or Salmonella typhimurium, the complete cleaning and disinfection of the house shall be performed, including safe disposal of excrements or litter in compliance with the method stipulated by the competent veterinary administration authority. Chicken restocking shall be in compliance with the requirements of the point Monitoring 2.A.1.
3) If the hatching eggs produced by the flocks, wherein the presence of Salmonella enteritidis or Salmonella typhimurium has been confirmed, are being in the hatchery, then they should be safely disposed of or treated as a very hazardous material in compliance with the peculiar rule.

Notification system in place

The results of all negative investigations in the rearing flocks, breeding flocks and hatcheries are notified by the state veterinary laboratories in the SR to the competent District Veterinary and Food Administrations. On the given date, the monthly report on findings is reported by the District Veterinary and Food Administrations to the State Veterinary and Food Administration of the SR (for information, the reports are also sent to the Regional Veterinary and Food Administration).
- If, after the monitoring in compliance with the point 1, the presence of Salmonella enteritidis or Salmonella typhimurium in breeding/reproductive flock has been detected, the person responsible for the laboratory performing the investigation, person performing the investigation or the owner of the flock shall immediately report the results to the competent District Veterinary and Food Administration.
- All positive results of investigations, carried out in compliance with the point 8, are sent to the competent District Veterinary and Food Administration and State Veterinary and Food Administration of the SR.

F. Salmonella spp in pigs

Monitoring system

Sampling strategy

Breeding herds

In Slovakia, the active monitoring has not been performed. In the case of suspicion of the disease occurrence, the owner or person responsible for the holding shall take the samples on his/her own expenses. The laboratory confirms or excludes the occurrence of infection and is obliged to send the isolated strain to the NRL for salmonellas.
Sampling strategy
The rectal swabs, excrements, carcasses or organs from dead animals are sent for the investigation.

Multiplying herds

In Slovakia, the active monitoring has not been performed. In the case of suspicion of the disease occurrence, the owner or person responsible for the holding shall take the samples on his/her own expenses. The laboratory confirms or excludes the occurrence of infection and is obliged to send the isolated strain to the NRL for salmonellas.
Sampling strategy
The rectal swabs, excrements, carcasses or organs from dead animals are sent for the investigation.

Fattening herds

In Slovakia, the active monitoring has not been performed. In the case of suspicion of the disease occurrence, the owner or person responsible for the holding shall take the samples on his/her own expenses. The laboratory confirms or excludes the occurrence of infection and is obliged to send the isolated strain to the NRL for salmonellas.
Sampling strategy
The rectal swabs, excrements, carcasses or organs from dead animals are sent for the investigation.

Diagnostic/analytical methods used

Breeding herds

Bacteriological method: STN EN ISO 6579

Multiplying herds

Bacteriological method: STN EN ISO 6579

Fattening herds at farm

Bacteriological method: STN EN ISO 6579

Fattening herds at slaughterhouse (herd based approach)

Bacteriological method: STN EN ISO 6579

Notification system in place

All positive results of investigations are sent to the competent District Veterinary and Food Administration and State Veterinary and Food Administration of the SR.

G. Salmonella spp. in bovine animals

Monitoring system

Sampling strategy

In Slovakia, the active monitoring has not been performed. In the case of suspicion of the disease occurrence, the owner or person responsible for the holding shall take the samples on his/her own expenses. The laboratory confirms or excludes the occurrence of infection and is obliged to send the isolated strain to the NRL for salmonellas.
Sampling strategy:
The rectal swabs, excrements, carcasses or organs from dead animals are sent for the investigation.

Diagnostic/analytical methods used

Animals at farm

Bacteriological method: ISO 6579:2002

Animals at slaughter (herd based approach)

Bacteriological method: ISO 6579:2002

Notification system in place

All positive results of investigations are sent to the competent District Veterinary and Food Administration and State Veterinary and Food Administration of the SR.

Table 3.2.1 Salmonella sp. in Poultry breeding flocks (Gallus gallus)

	Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium
Gallus gallus							
parent breeding flocks for egg production line							
unspecified	a)			15			
parent breeding flocks for meat production line	a)	M	F	85	2	2	
day-old chicks	a)	M	F	1	1	1	
- during production period	a)	M	F	1	1	1	
parent breeding flocks, unspecified				83			

Footnote

a)SVFI, SVI
M - Monitoring
F - Fowl

Table 3.2.2 Salmonella sp. in other commercial poultry

	Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium	S. Choleraesuis	S. Heidelberg	S. Infantis	S. Kentucky	S. Mbandaka	S. Montevideo	S. Saintpaul	S. Senftenberg	S. Worthington	Salmonella spp.
Gallus gallus																	
laying hens																	
unspecified	a)	M	F	219	10	6						1		1		1	1
broilers																	
unspecified	a)	N	F	1944	63	52	1			1	4		3		1		1
unspecified																	
unspecified	a)	N	F	318	29	18	1	2	1	6				1			
Ducks																	
breeding flocks, unspecified				2													
- during production period	a)	N	F	4	1									1			
Geese																	
unspecified	a)	N	F	6	2		1							1			
Turkeys																	
unspecified	a)	N	F	53	19		1			2				16			

Footnote

a) SVFI, SVI
M - Monitoring program

N - Non monitoring program
F - Fowl

Table 3.2.3 Salmonella sp. in non-commercial poultry and birds

	Source of information	Remarks	Epidemiological unit	Flocks tested	Flocks positive	S. Enteritidis	S. Typhimurium	S. Essen
Pigeons	a)	N	A	44	1		1	
Guinea fowl	a)	N	F	5	0			
Quails	a)	N	F	3	0			
Pheasants	a)	N	F	22	1			1
Partridges	a)	N	F	2	0			
Ostriches	a)	N	F	60	1	1		
Pet animals								
parrot	a)	N	A	476	0			
Wildlife								
wild birds								
falcon	a)	N	A	15	1		1	
bustard	a)	N	A	1	0			
Peafowl	a)	N	A	1	0			

Footnote

a) SVFI, SVI
N - Non monitoring program
A - Animal

Table 3.2.4 Salmonella sp. in animals (non poultry)

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Bovismorbificans	S. Choleraesuis	S. Derby	S. Dublin	S. Infantis	other serovars
Cattle (bovine animals)	a)	N	A	1261	29	13	14				2		
Sheep	a)	N	A	95	0								
Goats	a)	N	A	6	0								
Pigs													
unspecified	a)	N	A	1330	34	5	1	1	23	1		3	
Pet animals													
dogs or cats	a)	N	A	140	3	2	1						
Zoo animals	a)	N	A	170	9								9
Wildlife													
wild birds	a)	N	A	66	6	4	2						
Farmed fish	a)	N	A	181	0								

Footnote

Other serovars: S.Abony, S.Ferruch, S.Kottbus, S.Potsdam, S.Richmond, S. enterica, subsp. arizonae, diarizonae, salamae
a) SVFI, SVI
N - Non monitoring program
A - Animal

2.1.5. Salmonella in feedstuffs

Table 3.1.1 Salmonella sp. in feed material of animal origin

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Derby	S. Isangi	S. Infantis	S. Montevideo	S. Ohio	S. Senftenberg
all feedingstuffs	SVFA			200-500g	1705	10	1		1	2	1	3	1	3

Footnote

SVFA - State Veterinary and Food Administration of the Slovak Republic

Table 3.1.2 Salmonella sp. in feed of vegetable origin

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Agona	S. Pomona	S. Worthington	other serovars
all feedingstuffs	SVFA			200-500g	955	15			4	3	7	1

Footnote

SVFA - State Veterinary and Food Administration of the Slovak Republic
other serovars - S. enterica subs. salamae

Table 3.1.3 Salmonella sp. in compound feedingstuff

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	S. Enteritidis	S. Typhimurium	S. Agona	S. Kentucky	S. Worthington	other serovars
all feedingstuffs	SVFA			200-500g	1925	4	0	0	1	1	1	1

Footnote

SVFA - State Veterinary and Food Administration of the Slovak Republic
other serovars - S. enterica subs. salamae

2.1.6. *Salmonella* serovars and phagetype distribution

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

Table 3.3.3 Salmonella serovars in animals

Serovars		Cattle (bovine animals)		Pigs		Gallus gallus		Other poultry		Other animals	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=		29		34	2	102		22		22
Number of isolates serotyped	N=		29		34	2	102				
Number of isolates per type											
S. Abony											2
S. Bovismorbificans					1						
S. Choleraesuis					23		2				
S. Derby					1						
S. Dublin			2								
S. Enteritidis			13		5	2	76				7
S. Essen											1
S. Ferruch											1
S. Heidelberg							1				
S. Infantis					3		7		2		
S. Kentucky							4				
S. Kottbus											1
S. Mbandaka							1				
S. Montevideo							3				
S. Potsdam											1
S. Richmond											1

S. Saintpaul						2		18		
S. Senftenberg						1				
S. Typhimurium		14		1		2		2		5
S. Worthington						1				
S. enterica subsp. arizonae										1
other serovars (1)						2				1
S. enterica subsp. diarizonae										1
Total of typed *Salmonella*isolates										

(1) : S. enterica, subsp. enterica: 2x Gallus gallus
S. enterica, subsp. salamae: 1x Other animals

Footnote

(*) M : Monitor, C : Clinical

Table 3.3.4 Salmonella serovars in food

Serovars		Bovine meat		Pig meat		Broiler meat		Other poultry		Other products of animal origin	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=				2		4				6
Number of isolates serotyped	N=				2		2				
Number of isolates per type											
S. Enteritidis							3				6
S. Typhimurium					1						
S. Virchow							1				
other serovars (1)					1						
Total of typed *Salmonella*isolates											

(1) : S. enterica

Footnote

(*) M : Monitor, C : Clinical
other serovars = S. enterica

Table 3.3.5 S.Enteridis phagetypes in animals

Phagetype	Cattle (bovine animals)		Pigs		Gallus gallus		Other poultry		Other animals	
Sources of isolates	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory N=										
Number of isolates serotyped N=										
Number of isolates per type										
PT 1					3	11				
PT 4		2			5	23				9
PT 8		5		2	1	21				9
Total of typed *Salmonella*isolates										

Footnote

(*) M : Monitor, C : Clinical

Table 3.3.6 S.Enteridis phagetypes in food

Phagetype		Bovine meat		Pig meat		Broiler meat		Other poultry		Other products of animal origin	
Sources of isolates		M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)	M(*)	C(*)
Number of isolates in the laboratory	N=										
Number of isolates serotyped	N=						3				6
Number of isolates per type											
PT 1							1				2
PT 4							1				2
PT 8							1				
Total of typed *Salmonella*isolates											

Footnote

(*) M : Monitor, C : Clinical

Table 3.3.9 S. Enteritidis phagetypes in humans

Phagetype		humans	
Sources of isolates		M(*)	C(*)
Number of isolates in the laboratory	N=		
Number of isolates serotyped	N=		

Footnote

(*) M : Monitor, C : Clinical
no data available

Table 3.3.10 S. Typhimurium phagetypes in humans

Phagetype		humans	
Sources of isolates		M(*)	C(*)
Number of isolates in the laboratory	N=		
Number of isolates serotyped	N=		

Footnote

(*) M : Monitor, C : Clinical
no data available

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.

A. Antimicrobial resistance in Salmonella in cattle

Sampling strategy used in monitoring

Procedures for the selection of isolates for antimicrobial testing

Because of representative selection of isolated strains, the antibiotic resistance is detected only in one isolated strain from animals of the same origin and same flock or herd and by making provision for the season and possible treatment.

Methods used for collecting data

The evidence and statistical evaluation, planned program WHONET.
The crossresistance are counted as one resistance type.

Laboratory methodology used for identification of the microbial isolates

MIC Testing and Disc Diffusion Testing according to NCCLS.
Antimicrobials included in monitoring

Control program/mechanisms

Recent actions taken to control the zoonoses

In 2004, the detection of resistance of isolated strains was performed by NRL for salmonellas.

Notification system in place

The notification of results on antibiotic resistance to the antibiotics used in treatment towards the competent veterinarian is made immediately after isolation, additionally, by making provision for representative selection, the investigation of antibiotic resistance to broad-spectrum antibiotics is performed on account of resistance monitoring for indicator microorganisms Escherichia coli.

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

In calves, the occurrence of multiresistant isolated strains Salmonella Typhimurium (antimicrobial pattern ACSSuT + Nalidixic acid) has increased. From other serovars, polyresistant and multiresistant strains of Salmonella Choleraesuis, Derby and Heidelberg were isolated.

B. Antimicrobial resistance in Salmonella in pigs

Sampling strategy used in monitoring

Procedures for the selection of isolates for antimicrobial testing

Because of representative selection of isolated strains, the antibiotic resistance is detected only in one isolated strain from animals of the same origin and same flock or herd and by making provision for the season and possible treatment.

Methods used for collecting data

The evidence and statistical evaluation, planned program WHONET.
The crossresistance are counted as one resistance type.

Laboratory methodology used for identification of the microbial isolates

MIC Testing and Disc Diffusion Testing according to NCCLS.
Antimicrobials included in monitoring

Control program/mechanisms

Recent actions taken to control the zoonoses

In 2004, the detection of resistance of isolated strains was performed by NRL for salmonellas.

Notification system in place

The notification of results on antibiotic resistance to the antibiotics used in treatment towards the competent veterinarian is made immediately after isolation, additionally, by making provision for representative selection, the investigation of antibiotic resistance to broad-spectrum antibiotics is performed on account of resistance monitoring for indicator microorganisms Escherichia coli.

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

In calves, the occurrence of multiresistant isolated strains Salmonella Typhimurium (antimicrobial pattern ACSSuT + Nalidixic acid) has increased. In turkeys, the problems are Salmonella Saintpaul, increase of polyresistant and multiresistant isolated strains (antimicrobial pattern SSuT or ASSuT + Trimetoprim + Cephalotine). From other serovars, polyresistant and multiresistant strains of Salmonella Choleraesuis, Derby and Heidelberg were isolated.

C. Antimicrobial resistance in Salmonella in poultry

Sampling strategy used in monitoring

Procedures for the selection of isolates for antimicrobial testing

Because of representative selection of isolated strains, the antibiotic resistance is detected only in one isolated strain from animals of the same origin and same flock or herd and by making provision for the season and possible treatment.

Methods used for collecting data

The evidence and statistical evaluation, planned program WHONET.
The crossresistance are counted as one resistance type.

Laboratory methodology used for identification of the microbial isolates

MIC Testing and Disc Diffusion Testing according to NCCLS.

Control program/mechanisms

Recent actions taken to control the zoonoses

In 2004, the detection of resistance of isolated strains was performed by NRL for salmonellas.

Notification system in place

The notification of results on antibiotic resistance to the antibiotics used in treatment towards the competent veterinarian is made immediately after isolation, additionally, by making provision for representative selection, the investigation of antibiotic resistance to broad-spectrum antibiotics is performed on account of resistance monitoring for indicator microorganisms Escherichia coli.

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

In calves, the occurrence of multiresistant isolated strains Salmonella Typhimurium (antimicrobial pattern ACSSuT + Nalidixic acid) has increased. In turkeys, the problems are Salmonella Saintpaul, increase of polyresistant and multiresistant isolated strains (antimicrobial pattern SSuT or ASSuT + Trimetoprim + Cephalotine). From other serovars, polyresistant and multiresistant strains of Salmonella Choleraesuis, Derby and Heidelberg were isolated.

D. Antimicrobial resistance in Salmonella in foodstuff derived from cattle

Sampling strategy used in monitoring

Methods of sampling (description of sampling techniques)

The antibiotic resistance was only detected in one isolated strain of the same foodstuff, same origin and same production batch.
The evidence and statistical evaluation, planned program WHONET.
The crossresistance are counted as one resistance type.
Laboratory methodology used for detection of resistance:
MIC Testing and Disc Diffusion Testing according to NCCLS
Antimicrobials included in monitoring
Recent actions taken to control the antimicrobial resistance
In 2004, the detection of resistance of isolated strains was performed by NRL for salmonellas.

Notification system in place

The resistance of salmonella isolated strains from foodstuffs is for the time being not detected immediately after the isolation, in contrast to isolated strains from animals (immediate testing

because of possible treatment).

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

The situation in occurrence of resistant salmonella strains, isolated from foodstuffs and feedingstuffs is rather favourable, in future, the problem could originate in transmission of resistant strains from animals. The only multiresistant strain was Salmonella Virchow (antimicrobial pattern ACSSuT + Nalidixic acid + Trimetoprim), isolated from frozen turkey meat (ready-to-cook), imported from abroad.

E. Antimicrobial resistance in Salmonella in foodstuff derived from pigs

Sampling strategy used in monitoring

Methods of sampling (description of sampling techniques)

The antibiotic resistance was only detected in one isolated strain of the same foodstuff, same origin and same production batch.
The evidence and statistical evaluation, planned program WHONET.
The crossresistance are counted as one resistance type.
Laboratory methodology used for detection of resistance:
MIC Testing and Disc Diffusion Testing according to NCCLS
Antimicrobials included in monitoring
Recent actions taken to control the antimicrobial resistance
In 2004, the detection of resistance of isolated strains was performed by NRL for salmonellas.

Notification system in place

The resistance of salmonella isolated strains from foodstuffs is for the time being not detected immediately after the isolation, in contrast to isolated strains from animals (immediate testing because of possible treatment).

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

The situation in occurrence of resistant salmonella strains, isolated from foodstuffs and feedingstuffs is rather favourable, in future, the problem could originate in transmission of resistant strains from animals.

F. Antimicrobial resistance in Salmonella in foodstuff derived from poultry

Sampling strategy used in monitoring

Methods of sampling (description of sampling techniques)

The antibiotic resistance was only detected in one isolated strain of the same foodstuff, same origin and same production batch.
The evidence and statistical evaluation, planned program WHONET.
The crossresistance are counted as one resistance type.
Laboratory methodology used for detection of resistance:

MIC Testing and Disc Diffusion Testing according to NCCLS
Antimicrobials included in monitoring
Recent actions taken to control the antimicrobial resistance
In 2004, the detection of resistance of isolated strains was performed by NRL for salmonellas.

Notification system in place

The resistance of salmonella isolated strains from foodstuffs is for the time being not detected immediately after the isolation, in contrast to isolated strains from animals (immediate testing because of possible treatment).

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

The situation in occurrence of resistant salmonella strains, isolated from foodstuffs and feedingstuffs is rather favourable, in future, the problem could originate in transmission of resistant strains from animals. The only multiresistant strain was Salmonella Virchow (antimicrobial pattern ACSSuT + Nalidixic acid + Trimetoprim), isolated from frozen turkey meat (ready-to-cook), imported from abroad.

Table Antimicrobial susceptibility testing of S. Choleraesuis - qualitative data

	S. Choleraesuis									
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**		**Other animals**	
Isolates out of a monitoring program			no		yes					
Number of isolates available in the laboratory			14		2					
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline			10	20%	2	100%				
Amphenicols										
Chloramphenicol			10	10%	2	0%				
Florfenicol			10		2					
Cephalosporin										
Cephalothin			10	0%	2	0%				
Cefotaxim			10	0%	2	0%				
Ceftazidim			10	0%	2					
Fluoroquinolones										
Ciprofloxacin			10	0%	2	0%				
Enrofloxacin			10	0%	2	0%				
Quinolones										
Nalidixic acid			10		2	100%				
Oxolinic acid			10		2	100%				
Trimethoprim			10	0%	2	0%				
Sulfonamides										
Sulfonamide			10	30%	2	100%				
Aminoglycosides										
Streptomycin			10	80%	2	100%				
Gentamicin			10	0%	2	0%				
Kanamycin			10	0%	2	0%				
Tobramycin			10	0%	2	0%				
Trimethoprim + sulfonamides			10	0%	2	0%				
Penicillins										
Ampicillin			10	10%	2	0%				
Ampicillin/ Sulbactam			10	0%	2	0%				
Number of multiresistant isolates										
fully sensitives			2	20%						
resistant to 1 antimicrobial			5	50%						
resistant to 2 antimicrobials			1	10%						
resistant to 3 antimicrobials			1	10%						
resistant to 4 antimicrobials					2	100%				
resistant to >4 antimicrobials			1	10%						

Footnote

Tab. 3.2.5.5
Number of multiresistant isolates - crossresistance are counted as one resistence type.

Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Choleraesuis in all animals - quantitative data [Dilution method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Choleraesuis
	all animals
Isolates out of a monitoring program	no
Number of isolates available in the laboratory	16

Antimicrobials:	**N**	**%R**	**<=0.03**	**0.06**	**0.12**	**0.25**	**0.5**	**1**	**2**	**4**	**8**	**16**	**32**	**64**	**128**	**256**	**512**	**1024**	**2048**	**>2048**	**lowest**	**highest**
Tetracycline	12	33%						8	42	17					33							
Amphenicols																						
Chloramphenicol	12	8						59	25	8				8								
Cephalosporin																						
Cefotaxim	12				100																	
Ceftazidim	12					25	59	8	8													
Fluoroquinolones																						
Ciprofloxacin	12			84			16															
Quinolones																						
Oxolinic acid	12	16				16	68				8	8										
Trimethoprim	12					100																
Aminoglycosides																						
Gentamicin	12						92	8														
Tobramycin	12								25	75												
Trimethoprim + sulfonamides	12							100														
Penicillins																						
Ampicillin	12	8							50	17	17	8			8							
Ampicillin/ Sulbactam	12								50	17	25	8										

Footnote

Tab. 3.2.7.2 CHS

Animal species - pigs (10), poultry Gallus gallus (2)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Choleraesuis in all animals - quantitative data [Diffusion method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Choleraesuis
	all animals
Isolates out of a monitoring program	no
Number of isolates available in the laboratory	16

Antimicrobials:	**N**	**%R**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Amphenicols																																
Florfenicol	12																8	8	8	8	25	25	18									
Cephalosporin																																
Cephalothin	12															8	8	17	34	25		8										
Quinolones																																
Nalidixic acid	12	17	17															34	24	17	8											
Sulfonamides																																
Sulfonamide	12	42	42											8				17	17		8	8										
Aminoglycosides																																
Streptomycin	12	84	25	17	17		17	8		8		8																				
Kanamycin	12															24	42	17	17													

Footnote

Tab. 3.2.7.1 CHS
Animal species - pigs (10), poultry Gallus gallus (2)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table 3.2.5.2 Antimicrobial susceptibility testing of S.Enteritidis in animals

	S. Enteritidis									
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**		**Other animals**	
Isolates out of a monitoring program	no		no		yes				no	
Number of isolates available in the laboratory	10		4		78				8	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline	8	0%	2	0%	48	0%			8	0%
Amphenicols										
Chloramphenicol	8	0%	2	0%	48	0%			8	0%
Florfenicol	8		2		48				8	
Cephalosporin										
Cephalothin	8	0%	2	0%	48	0%			8	0%
Cefotaxim	8	0%	2	0%	48	0%			8	0%
Ceftazidim	8	0%	2	0%	48	0%			8	0%
Fluoroquinolones										
Ciprofloxacin	8	0%	2	0%	48	0%			8	0%
Quinolones										
Nalidixic acid	8	0%	2	0%	48	2%			8	13%
Oxolinic acid	8	0%	2	0%	48	2%			8	13%
Trimethoprim	8	0%	2	0%	48	0%			8	0%
Sulfonamides										
Sulfonamide	8	0%	2	0%	48	0%			8	0%
Aminoglycosides										
Streptomycin	8	0%	2	0%	48	0%			8	0%
Gentamicin	8	0%	2	0%	48	0%			8	0%
Kanamycin	8	0%	2	0%	48	0%			8	0%
Tobramycin	8	0%	2	0%	48	0%			8	0%
Trimethoprim + sulfonamides	8	0%	2		48	0%			8	0%
Penicillins										
Ampicillin	8	0%	2	0%	48	0%			8	0%
Ampicillin/ Sulbactam	8	0%	2	0%	48	0%			8	0%
Number of multiresistant isolates										
fully sensitives	8	100%	2	100%	47	98%			7	87%
resistant to 1 antimicrobial					1	2%			1	13%

Footnote

Number of multiresistant isolates - crossresistance are counted as one resistence type.
Other animals - pheasant (1), pigeon (1), rabbits (4), cat (1), fox (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Enteritidis in all animals - quantitative data [Dilution method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Enteritidis
	all animals
Isolates out of a monitoring program	no
Number of isolates available in the laboratory	100

Antimicrobials:	**N**	**%R**	**<=0.03**	**0.06**	**0.12**	**0.25**	**0.5**	**1**	**2**	**4**	**8**	**16**	**32**	**64**	**128**	**256**	**512**	**1024**	**2048**	**>2048**	**lowest**	**highest**
Tetracycline	66							3	82	15											1	128
Amphenicols																						
Chloramphenicol	66							5	93	2											0,5	64
Cephalosporin																						
Cefotaxim	66				100																0,12	16
Ceftazidim	66					5	76	17	2												0,12	16
Fluoroquinolones																						
Ciprofloxacin	66			97	3																0,06	8
Quinolones																						
Oxolinic acid	66	3				95	3				3										0,25	32
Trimethoprim	66					94	6														0,25	32
Aminoglycosides																						
Gentamicin	66					24	74	2													0,25	32
Tobramycin	66							21	73	6											0,25	32
Trimethoprim + sulfonamides	66							98	2												1	128
Penicillins																						
Ampicillin	66							2	25	59	14										0,5	64
Ampicillin/ Sulbactam	66							2	19	65	14										1	64

Footnote

Tab. 3.2.7.2

Animal species - cattle (8), pigs (2), poultry Gallus gallus (48), pheasant (1), pigeon (1), rabbits (4), cat (1), fox (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Enteritidis in all animals - quantitative data [Diffusion method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Enteritidis
	all animals
Isolates out of a monitoring program	no
Number of isolates available in the laboratory	100

Antimicrobials:	**N**	**%R**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Amphenicols																																
Florfenicol	66																1	2	6	5	5	28	45	6	2							
Cephalosporin																																
Cephalothin	66														13	23	33	20	5	3	3											
Quinolones																																
Nalidixic acid	66	3	3														8	27	30	20	10	2										
Sulfonamides																																
Sulfonamide	66	3	3											2			28	14	21	14	9	6	3	3								
Aminoglycosides																																
Streptomycin	66												2	8	43	27	14	4		2												
Neomycin	66																2	3	24	30	22	12	5	2								

Footnote

Tab. 3.2.7.1
Animal species - cattle (8), pigs (2), poultry Gallus gallus (48), pheasant (1), pigeon (1), rabbits (4), cat (1), fox (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Enteritidis in all foodstuffs - quantitative data [Dilution method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Enteritidis
	all foodstuffs
Isolates out of a monitoring program	yes
Number of isolates available in the laboratory	10

Antimicrobials:	**N**	**%R**	**<=0.03**	**0.06**	**0.12**	**0.25**	**0.5**	**1**	**2**	**4**	**8**	**16**	**32**	**64**	**128**	**256**	**512**	**1024**	**2048**	**>2048**	**lowest**	**highest**
Tetracycline	10	0%						10	70	20												
Amphenicols																						
Chloramphenicol	10	0						20	80													
Cephalosporin																						
Cefotaxim	10	0			100																	
Ceftazidim	10	0					90	10														
Fluoroquinolones																						
Ciprofloxacin	10	0		90		10																
Quinolones																						
Oxolinic acid	10	10				70	20				10											
Trimethoprim	10	0%				90	10															
Aminoglycosides																						
Gentamicin	10	0				20	80															
Tobramycin	10	0						10	90													
Trimethoprim + sulfonamides	10	0%						90	10													
Penicillins																						
Ampicillin	10	0							20	60	20											
Ampicillin/ Sulbactam	10	0							10	70	20											

Footnote

Tab. 3.2.7.4

Food category - poultry meat (4), hen eggs (4), poultry offal (1), noodles (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Enteritidis in all foodstuffs - quantitative data [Diffusion method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Enteritidis
	all foodstuffs
Isolates out of a monitoring program	yes
Number of isolates available in the laboratory	10

Antimicrobials:	**N**	**%R**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Amphenicols																																
Florfenicol	10																		10			30	40	20							
Cephalosporin																																
Cephalothin	10	0													30	10	20	20	20													
Quinolones																																
Nalidixic acid	10	10	10															30	20	40												
Sulfonamides																																
Sulfonamide	10	0														30		20	30		10	10										
Aminoglycosides																																
Streptomycin	10	0												50	40	10																
Kanamycin	10	0															10	10	20	40	20											

Footnote

Tab. 3.2.7.3
Food category - poultry meat (4), hen eggs (4), poultry offal (1), noodles (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Saintpaul - qualitative data

	S. Saintpaul									
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**		**Other animals**	
Isolates out of a monitoring program					yes		no		no	
Number of isolates available in the laboratory					3		8		2	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline					3	33%	6	83%	2	100%
Amphenicols										
Chloramphenicol					3	0%	6	0%	2	0%
Florfenicol					3		6		2	
Cephalosporin										
Cephalothin					3	0%	6	17%	2	0%
Cefotaxim					3	0%	6	0%	2	0%
Ceftazidim					3	0%	6	0%	2	0%
Fluoroquinolones										
Ciprofloxacin					3	0%	6	0%	2	0%
Quinolones										
Nalidixic acid					3	66%	6	17%	2	
Oxolinic acid					3	66%	6	17%	2	
Trimethoprim					3	0%	6	17%	2	100%
Sulfonamides										
Sulfonamide					3	33%	6	100%	2	100%
Aminoglycosides										
Streptomycin					3	33%	6	66%	2	100%
Gentamicin					3	0%	6	0%	2	0%
Kanamycin					3	0%	6	0%	2	0%
Tobramycin					3	0%	6	0%	2	0%
Trimethoprim + sulfonamides					3	0%	6	17%	2	100%
Penicillins										
Ampicillin					3	33%	6	34%	2	100%
Ampicillin/ Sulbactam					3		6	17%	2	
Number of multiresistant isolates										
resistant to 1 antimicrobial					1	33%	1	17%		
resistant to 2 antimicrobials					1	33%				
resistant to 3 antimicrobials					1	33%	4	66%		
resistant to >4 antimicrobials							1	17%	2	100%

Footnote

Tab. 3.2.5.4
Number of multiresistant isolates - crossresistance are counted as one resistence type.
Other animals - geese (1), duck (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Saintpaul in all animals - quantitative data [Dilution method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Saintpaul all animals																				
Isolates out of a monitoring program	no																				
Number of isolates available in the laboratory	13																				
Antimicrobials:	**N**	**%R**	**<=0.03**	**0.06**	**0.12**	**0.25**	**0.5**	**1**	**2**	**4**	**8**	**16**	**32**	**64**	**128**	**256**	**512**	**1024**	**2048**	**>2048**	**lowest**	**highest**
Tetracycline	11	73%							9	18				27	46						1	128
Amphenicols																						
Chloramphenicol	11								91	9											0,5	64
Cephalosporin																						
Cefotaxim	11				100																0,12	16
Ceftazidim	11				9	36	55														0,12	16
Fluoroquinolones																						
Ciprofloxacin	11			73		18	9														0,06	8
Quinolones																						
Oxolinic acid	11	27				55	18				9	18									0,25	32
Trimethoprim	11	27%				73								27							0,25	32
Aminoglycosides																						
Gentamicin	11						82	18													0,25	32
Tobramycin	11							36	64												0,25	32
Trimethoprim + sulfonamides	11	27%						73								27					1	128
Penicillins																						
Ampicillin	11	45						37	18						45						0,5	64
Ampicillin/ Sulbactam	11	9						46	9		27	9	9								1	64

Footnote

Tab. 3.2.7.2 SP

Animal species - poultry Gallus gallus (3), turkeys (6), geese (1), ducks (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Saintpaul in all animals - quantitative data [Diffusion method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Saintpaul
	all animals
Isolates out of a monitoring program	no
Number of isolates available in the laboratory	13

Antimicrobials:	**N**	**%R**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Amphenicols																																
Florfenicol	11																		9	27	37	27										
Cephalosporin																																
Cephalothin	11	9									9			18		9	9	37	18													
Quinolones																																
Nalidixic acid	11	27	27															27	28	18												
Sulfonamides																																
Sulfonamide	11	82	82																	18												
Aminoglycosides																																
Streptomycin	11	64	28		18	9	9			9	9	9			9																	
Kanamycin	11														9	27	46	9	9													

Footnote

Tab. 3.2.7.1 SP
Animal species - poultry Gallus gallus (3), turkeys (6), geese (1), ducks (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table 3.2.5.3 Antimicrobial susceptibility testing of S.Typhimurium in animals

	S. Typhimurium									
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**		**Other animals**	
Isolates out of a monitoring program	no		no		yes				no	
Number of isolates available in the laboratory	10		1		4				5	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline	8	87%	1		4	25%			4	25%
Amphenicols										
Chloramphenicol	8	87%	1	0%	4	25%			4	25%
Florfenicol	8		1		4				4	
Cephalosporin										
Cephalothin	8	0%	1	0%	4	0%			4	0%
Cefotaxim	8	0%	1	0%	4	0%			4	0%
Ceftazidim	8	0%	1	0%	4	0%			4	0%
Fluoroquinolones										
Ciprofloxacin	8	0%	1	0%	4	0%			4	0%
Quinolones										
Nalidixic acid	8	87%	1	0%	4	0%			4	25%
Oxolinic acid	8	87%	1	0%	4	0%			4	25%
Trimethoprim	8	0%	1	0%	4	25%			4	0%
Sulfonamides										
Sulfonamide	8	87%	1		4	50%			4	25%
Aminoglycosides										
Streptomycin	8	87%	1		4	50%			4	100%
Gentamicin	8	0%	1	0%	4	0%			4	0%
Kanamycin	8	0%	1	0%	4	0%			4	0%
Tobramycin	8	0%	1	0%	4	0%			4	0%
Trimethoprim + sulfonamides	8	0%	1	0%	4	25%			4	0%
Penicillins										
Ampicillin	8	87%	1	0%	4	50%			4	25%
Ampicillin/ Sulbactam	8	87%	1	0%	4	25%			4	25%
Number of multiresistant isolates										
fully sensitives	1	13%	1	100%	2	50%				
resistant to 1 antimicrobial									3	75%
resistant to 4 antimicrobials					1	25%				
resistant to >4 antimicrobials	7	87%			1	25%			1	25%
Number of multiresistant DT104										
with penta resistance	7	87%			1	25%			1	25%
resistant to other antimicrobials(1)	7	87%							1	25%

(1) : Nalidixic acid: cattle 7 samples, dog 1 sample

Footnote

Number of multiresistant isolates - crossresistance are counted as one resistence type.
Other animals - geese (1), pigeon (1), falcon (1), dog (1)
Cephalosporins - more than one cephalosporin would be desirable

Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Typhimurium in all animals - quantitative data [Dilution method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Typhimurium																					
	all animals																					
Isolates out of a monitoring program	no																					
Number of isolates available in the laboratory	20																					
Antimicrobials:	**N**	**%R**	**<=0.03**	**0.06**	**0.12**	**0.25**	**0.5**	**1**	**2**	**4**	**8**	**16**	**32**	**64**	**128**	**256**	**512**	**1024**	**2048**	**>2048**	**lowest**	**highest**
Tetracycline	17	53%							47				41	12							1	128
Amphenicols																						
Chloramphenicol	17	53						12	35					47	6						0,5	64
Cephalosporin																						
Cefotaxim	17				100																0,12	16
Ceftazidim	17					6	71	23													0,12	16
Fluoroquinolones																						
Ciprofloxacin	17			53	47																0,06	8
Quinolones																						
Oxolinic acid	17	47				53					35	12									0,25	32
Trimethoprim	17	6%				94										6					0,25	32
Aminoglycosides																						
Gentamicin	17					12	76	12													0,25	32
Tobramycin	17								94	6											0,25	32
Trimethoprim + sulfonamides	17							100													1	128
Penicillins																						
Ampicillin	17	59							41					6	53						0,5	64
Ampicillin/ Sulbactam	17	53							35	6		6	24	29							1	64

Footnote

Tab. 3.2.7.2 TM

Animal species - cattle (8), pigs (1), poultry Gallus gallus (4), geese (1), pigeon (1), falcon (1), dog (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of S. Typhimurium in all animals - quantitative data [Diffusion method]

Percentage of resistant isolates (R%) and percentage of isolates with the concentration (µl/ml) or zone (mm) of inhibition equal to

	S. Typhimurium
	all animals
Isolates out of a monitoring program	no
Number of isolates available in the laboratory	20

Antimicrobials:	**N**	**%R**	**6**	**7**	**8**	**9**	**10**	**11**	**12**	**13**	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26**	**27**	**28**	**29**	**30**	**31**	**32**	**33**	**34**	**35**
Amphenicols																																
Florfenicol	17		6				12	17	6	6				6					6	6		12	23									
Cephalosporin																																
Cephalothin	17													17	6	47	18	6	6													
Quinolones																																
Nalidixic acid	17	47	47															6	12	23		6	6									
Sulfonamides																																
Sulfonamide	17	59	59											17	12	6	6															
Aminoglycosides																																
Streptomycin	17	76	53				6	17		6				18																		
Kanamycin	17														35	35	12		12	6												

Footnote

Tab. 3.2.7.1 TM
Animal species - cattle (8), pigs (1), poultry Gallus gallus (4), geese (1), pigeon (1), falcon (1), dog (1)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table 3.2.5.1 Antimicrobial susceptibility testing of Salmonella spp. in animals

	Salmonella spp.									
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**		**Other animals**	
Isolates out of a monitoring program	no		no		yes		no		no	
Number of isolates available in the laboratory	22		34		101		11		23	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline	18	39%	23	9%	66	9%	9	55%	18	26%
Amphenicols										
Chloramphenicol	18	39%	23	4%	66	5%	9	0%	18	6%
Florfenicol	18		23		66		9		18	
Cephalosporin										
Cephalothin	18	0%	23	0%	66	2%	9	11%	18	0%
Cefotaxim	18	0%	23	0%	66	0%	9	0%	18	0%
Ceftazidim	18	0%	23	0%	66	0%	9	0%	18	0%
Fluoroquinolones										
Ciprofloxacin	18	0%	23	0%	66	0%	9	0%	18	0%
Quinolones										
Nalidixic acid	18	39%	23	0%	66	9%	9	11%	18	17%
Oxolinic acid	18	39%	23	0%	66	9%	9	11%	18	17%
Trimethoprim	18	0%	23	0%	66	2%	9	11%	18	11%
Sulfonamides										
Sulfonamide	18	39%	23	39%	66	8%	9	67%	18	22%
Aminoglycosides										
Streptomycin	18	39%	23	43%	66	14%	9	55%	18	39%
Gentamicin	18	0%	23	0%	66	0%	9	0%	18	0%
Kanamycin	18	0%	23	0%	66	0%	9	0%	18	0%
Tobramycin	18	0%	23	0%	66	0%	9	0%	18	0%
Trimethoprim + sulfonamides	18	0%	23	0%	66	2%	9	11%	18	11%
Penicillins										
Ampicillin	18	39%	23	4%	66	8%	9	22%	18	17%
Ampicillin/ Sulbactam	18	39%	23		66	3%	9	11%	18	6%
Number of multiresistant isolates										
fully sensitives	11	61%	8	35%	53	79%	2	22%	10	55%
resistant to 1 antimicrobial			11	48%	5	8%	2	22%	4	22%
resistant to 2 antimicrobials			2	9%	2	3%				
resistant to 3 antimicrobials			1	4%	1	2%	4	45%		
resistant to 4 antimicrobials					2	3%			1	6%
resistant to >4 antimicrobials	7	39%	1	4%	3	5%	1	11%	3	17%

Footnote

Number of multiresistant isolates - crossresistance are counted as one resistence type.
Other animals are specified in tab. 3.2.5.2 - 3.2.5.4
Cephalosporins - more than one cephalosporin would be desirable

Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table 3.2.5.5 Antimicrobial susceptibility testing of Salmonella spp. in food

	Salmonella spp.									
	Broiler meat		**Other poultry meat**		**Pig meat**		**Bovine meat**		**Other food**	
Isolates out of a monitoring program	yes		yes		yes				no	
Number of isolates available in the laboratory	4		1		1				31	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline	4	0%	1	100%	1	0%			20	0%
Amphenicols										
Chloramphenicol	4	0%	1	100%	1	0%			20	0%
Florfenicol	4		1		1				20	
Cephalosporin										
Cephalothin	4	0%	1	0%	1	0%			20	0%
Cefotaxim	4	0%	1	0%	1	0%			20	0%
Ceftazidim	4	0%	1	0%	1	0%			20	0%
Fluoroquinolones										
Ciprofloxacin	4	0%	1	0%	1	0%			20	0%
Quinolones										
Nalidixic acid	4	25%	1	100%	1	0%			20	0%
Oxolinic acid	4	25%	1	100%	1	0%			20	0%
Trimethoprim	4	0%	1	100%	1	0%			20	0%
Sulfonamides										
Sulfonamide	4	0%	1	100%	1	0%			20	0%
Aminoglycosides										
Streptomycin	4	0%	1	100%	1	100%			20	0%
Gentamicin	4	0%	1	0%	1	0%			20	0%
Kanamycin	4	0%	1	0%	1	0%			20	0%
Tobramycin	4	0%	1	0%	1	0%			20	0%
Trimethoprim + sulfonamides	4	0%	1	100%	1	0%			20	0%
Penicillins										
Ampicillin	4	0%	1	100%	1	0%			20	0%
Ampicillin/ Sulbactam	4	0%	1	100%	1	0%			20	0%
Number of multiresistant isolates										
fully sensitives	3	75%							20	100%
resistant to 1 antimicrobial	1	25%			1	100%				
resistant to >4 antimicrobials			1	100%						

Footnote

Number of multiresistant isolates - crossresistance are counted as one resistence type.
Foods (6): pork - Enterica subsp. Enterica, poultry meat - Enteritidis (4), turkey meat - Virchow (1-multiresistant)
Other foods (7): eggs - Enteritidis (1), blood meal - Montevideo (1), meat and bone meal - Isangi (1), Senftenberg (1), poultry offal meal - Infantis (1), Ohio (1), maize brain - Agona (1), Pomona (1), Worthington (1), Enterica subsp. Enterica (1), compound feedstuffs - Agona (1), Kentucky (1), Enterica subsp. Enterica (1).
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table Antimicrobial susceptibility testing of other serovars - qualitative data

	other serovars									
	Cattle (bovine animals)		**Pigs**		**Gallus gallus**		**Turkeys**		**Other animals**	
Isolates out of a monitoring program	no		no		yes		no		no	
Number of isolates available in the laboratory	2		15		14		3		9	
Antimicrobials:	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**	**N**	**%R**
Tetracycline	2	0%	10	0%	9	22%	3	0%	4	25%
Amphenicols										
Chloramphenicol	2	0%	10	0%	9	22%	3	0%	4	0%
Florfenicol	2		10		9		3		4	
Cephalosporin										
Cephalothin	2	0%	10	0%	9	11%	3	0%	4	0%
Cefotaxim	2	0%	10	0%	9	0%	3	0%	4	0%
Ceftazidim	2	0%	10	0%	9	0%	3	0%	4	0%
Fluoroquinolones										
Ciprofloxacin	2	0%	10	0%	9	0%	3	0%	4	0%
Quinolones										
Nalidixic acid	2	0%	10	0%	9	11%	3	0%	4	25%
Oxolinic acid	2	0%	10	0%	9	11%	3	0%	4	25%
Trimethoprim	2	0%	10	0%	9	0%	3	0%	4	0%
Sulfonamides										
Sulfonamide	2	0%	10	60%	9	0%	3	0%	4	25%
Aminoglycosides										
Streptomycin	2	0%	10	20%	9	44%	3	33%	4	25%
Gentamicin	2	0%	10	0%	9	0%	3	0%	4	0%
Kanamycin	2	0%	10	0%	9	0%	3	0%	4	0%
Tobramycin	2	0%	10	0%	9	0%	3	0%	4	0%
Trimethoprim + sulfonamides	2	0%	10	0%	9	0%	3	0%	4	0%
Penicillins										
Ampicillin	2	0%	10	0%	9	22%	3	0%	4	0%
Ampicillin/ Sulbactam	2	0%	10	0%	9	11%	3	0%	4	0%
Number of multiresistant isolates										
fully sensitives	2	100%	3	30%	4	45%	2	67%	3	75%
resistant to 1 antimicrobial			6	60%	3	33%	1	33%		
resistant to 2 antimicrobials			1	10%	1	11%				
resistant to 4 antimicrobials									1	25%
resistant to >4 antimicrobials					1	11%				

Footnote

Number of multiresistant isolates - crossresistance are counted as one resistence type.
Other animals - sheeps - Worthington (1), ostroches - Bredeney (), silver foxes - Enterica subsp. Salamae, turtles - Potsdam (1)
Animals: cattle - Dublin (2), pigs - Bovismorbificans (3), Bredeney (1), Derby (2), Infantis (3), London (1), Tennessee (1), poultry - Derby (1), Heidelberg (1-ACSTNxCep1), Infantis (1), Kentucky (2), Montevideo (),

Senftenberg (1), Worthington (1), Enterica subsp. Enterica (1), Turkeys - Infantis (3)
Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Animals

Test Method Used

Disc diffusion
Agar dilution
Broth dilution
E-test

Standards used for testing

NCCLS
CASFM

Subject to quality control

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline	NCCLS	4	8	16	1	128				
Amphenicols										
Chloramphenicol	NCCLS	8	16	32	0,5	64				
Florfenicol							30			
Cephalosporin										
Cephalothin	NCCLS						30	18		14
Cefotaxim	NCCLS	8		64	0,12	16				
Ceftazidim	NCCLS	8	16	32	0,12	16				
3rd generation cephalosporins										
Fluoroquinolones										
Ciprofloxacin	NCCLS	1	2	4	0,06	8				
Enrofloxacin										
Quinolones										
Nalidixic acid	NCCLS						30	19		13
Oxolinic acid	NCCLS	4		8	0,25	32				
Trimethoprim	NCCLS	8		16	0,25	32				
Sulfonamides										
Sulfonamide	NCCLS						300	17		12
Aminoglycosides										
Streptomycin	Sensititre						10	15		11
Gentamicin	NCCLS	4	8	16	0,25	32				
Neomycin										
Kanamycin	NCCLS						30	18		13
Tobramycin	NCCLS	4	8	16	0,25	32				
Trimethoprim + sulfonamides	NCCLS	38		76	1	128				
Penicillins										
Ampicillin	NCCLS	8	16	32	0,5	64				
Ampicillin/ Sulbactam	NCCLS	8	16	32	1	64				

Footnote

Cephalosporins - more than one cephalosporin would be desirable
Fluoroquinolones - alternatives, only one needs be tested
Trimethoprim - not necessary to be tested

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Food

Test Method Used

Disc diffusion
Agar dilution
Broth dilution
E-test

Standards used for testing

NCCLS
CASFM

Subject to quality control

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline	NCCLS	4	8	16	1	128				
Amphenicols										
Chloramphenicol	NCCLS	8	16	32	0,5	64				
Florfenicol							30			
Cephalosporin										
Cephalothin	NCCLS						30	18		14
Cefotaxim	NCCLS	8		64	0,12	16				
Ceftazidim	NCCLS	8	16	32	0,12	16				
3rd generation cephalosporins										
Fluoroquinolones										
Ciprofloxacin	NCCLS	1	2	4	0,06	8				
Enrofloxacin										
Quinolones										
Nalidixic acid	NCCLS						30	19		13
Oxolinic acid	NCCLS	4		8	0,25	32				
Trimethoprim	NCCLS	8		16	0,25	32				
Sulfonamides										
Sulfonamide	NCCLS						300	17		12
Aminoglycosides										
Streptomycin	Sensititre						10	15		11
Gentamicin	NCCLS	4	8	16	0,25	32				
Neomycin										
Kanamycin	NCCLS						30	18		13
Tobramycin	NCCLS	4	8	16	0,25	32				
Trimethoprim + sulfonamides	NCCLS	38		76	1	128				
Penicillins										
Ampicillin	NCCLS	8	16	32	0,5	64				
Ampicillin/ Sulbactam	NCCLS	8	16	32	1	64				

Table 3.2.6 Breakpoints for antibiotic resistance of Salmonella in Feedingstuff

Test Method Used

- Disc diffusion
- Agar dilution
- Broth dilution
- E-test

Standards used for testing

- NCCLS
- CASFM

Subject to quality control

Salmonella	Standard for breakpoint	Breakpoint concentration (microg/ml)			Range tested concentration (microg/ml)		disk content	breakpoint Zone diameter (mm)		
		Susceptible <=	Intermediate	Resistant >	lowest	highest	microg	Susceptible >=	Intermediate	Resistant <=
Tetracycline	NCCLS	4	8	16	1	128				
Amphenicols										
Chloramphenicol	NCCLS	8	16	32	0,5	64				
Florfenicol							30			
Cephalosporin										
Cephalothin	NCCLS						30	18		14
Cefotaxim	NCCLS	8		64	0,12	16				
Ceftazidim	NCCLS	8	16	32	0,12	16				
3rd generation cephalosporins										
Fluoroquinolones										
Ciprofloxacin	NCCLS	1	2	4	0,06	8				
Enrofloxacin										
Quinolones										
Nalidixic acid	NCCLS						30	19		13
Oxolinic acid	NCCLS	4		8	0,25	32				
Trimethoprim	NCCLS	8		16	0,25	32				
Sulfonamides										
Sulfonamide	NCCLS						300	17		12
Aminoglycosides										
Streptomycin	Sensititre						10	15		11
Gentamicin	NCCLS	4	8	16	0,25	32				
Neomycin										
Kanamycin	NCCLS						30	18		13
Tobramycin	NCCLS	4	8	16	0,25	32				
Trimethoprim + sulfonamides	NCCLS	38		76	1	128				
Penicillins										
Ampicillin	NCCLS	8	16	32	0,5	64				
Ampicillin/ Sulbactam	NCCLS	8	16	32	1	64				

2.2. CAMPYLOBACTERIOSIS

2.2.1. General evaluation of the national situation

A. Thermophilic Campylobacter General evaluation

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

The monitoring system for Thermophilic Campylobacter in the Slovak republic has not been adopted.

2.2.2. Campylobacteriosis in humans

A. Thermophilic Campylobacter in humans

Reporting system in place for the human cases

Campylobacteriosis is reported mandatory, reporting persons are physicians and laboratories.

Case definition

Clinical picture compatible with campylobacteriosis, e.g. diarrhoeal illness of variable severity.

Diagnostic/analytical methods used

Isolation of Campylobacter species from any clinical specimen.

History of the disease and/or infection in the country

Campylobacteriosis is reported in Slovakia since the 80-ties.

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

The trends of campylobacteriosis are stabile in Slovakia. The highest age-specific incidence in the children has been reported up to 1 year of age. The risk factor of transmission was found in sheep milk, sheep cheeses and other sheep products and poultry.

Table 6.3.A Campylobacteriosis in man - species/serotype distribution

Campylobacter	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc	unknown status
C. coli							
C. jejuni							
C. upsaliensis							
Campylobacter spp.	1691	31,4309	1682	31,2636	9	0,16728	0

Table 6.3.B Campylobacteriosis in man - age distribution

Age Distribution	C. coli			C. jejuni			Campylobacter spp.		
	All	M	F	All	M	F	All	M	F
<1 year	180	88	92						
1 to 4 years	449	258	191						
5 to 14 years	417	238	179						
15 to 24 years	202	124	78						
25 to 44 years	277	140	137						
45 to 64 years	113	49	64						
65 years and older	53	19	34						
Age unknown	0	0	0						
Total :	1691	916	775	0	0	0	0	0	0

Table 6.3.C Campylobacteriosis in man - seasonal distribution

Month	C. coli	C. jejuni	C. upsaliensis	Campylobacter spp.
	Cases	Cases	Cases	Cases
January				44
February				38
March				35
April				91
May				156
June				369
July				212
August				229
September				174
October				155
November				112
December				76
not known				0
Total :	0	0	0	1691

2.2.3. Campylobacter in foodstuffs

A. Thermophilic Campylobacter in Broiler meat and products thereof

Control program/mechanisms

The control program/strategies in place

only as a targeted control, just occasionally

Additional information

Methods of sampling - according the valid STN
Diagnostic/analytical methods used STN ISO 10 272

Table 6.2 Thermophilic Campylobacter spp. in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	C. coli	C. lari	C. upsaliensis	C. jejuni	Campylobacter spp.
Pig meat										
fresh										
- at retail	SVFI			10	1278					
Poultry meat										
fresh										
- at retail	SVFI			10	270				22	22
cow milk										
raw	SVFI			10	136					
Dairy products										
ready-to-eat	SVFI			10	111				1	1

Footnote

SVFI - State Veterinary and Food Institutes

2.2.4. Campylobacter in animals

Table 6.1.1 Thermophilic Campylobacter spp. in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	C. jejuni	C. coli	C. lari	C. upsaliensis
Sheep	RL		A	1	0				
Pigs	RL		A	3	0				
Pet animals									
dogs	RL		A	39	0				
cats	RL		A	4	0				
Other animals	RL		A	1	0				

Footnote

RL - Reference Laboratory Dolný Kubín
epidemiological unit - A - animal

2.2.5. Antimicrobial resistance in *Campylobacter* isolates

A. Antimicrobial resistance in Campylobacter jejuni and coli in cattle

Control program/mechanisms

The control program/strategies in place

The monitoring system for Antimicrobial resistance in Campylobacter in the Slovak republic has not been adopted.

B. Antimicrobial resistance in Campylobacter jejuni and coli in pigs

Control program/mechanisms

The control program/strategies in place

The monitoring system for Antimicrobial resistance in Campylobacter in the Slovak republic has not been adopted.

C. Antimicrobial resistance in Campylobacter jejuni and coli in poultry

Control program/mechanisms

The control program/strategies in place

The monitoring system for Antimicrobial resistance in Campylobacter in the Slovak republic has not been adopted.

D. Antimicrobial resistance in Campylobacter jejuni and coli in foodstuff derived from cattle

Control program/mechanisms

The control program/strategies in place

The monitoring system for Antimicrobial resistance in Campylobacter in the Slovak republic has not been adopted.

E. Antimicrobial resistance in Campylobacter jejuni and coli in foodstuff derived from pigs

Control program/mechanisms

The control program/strategies in place

The monitoring system for Antimicrobial resistance in Campylobacter in the Slovak republic has not been adopted.

F. Antimicrobial resistance in Campylobacter jejuni and coli in foodstuff

derived from poultry

Control program/mechanisms

The control program/strategies in place

The monitoring system for Antimicrobial resistance in Campylobacter in the Slovak republic has not been adopted.

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

The monitoring system for Listeria spp. in the Slovak Republic has not been adopted.

2.3.2. Listeriosis in humans

A. Listeriosis in humans

Reporting system in place for the human cases

Disease is reported mandatory by physicians on microbiological labs.

Case definition

Infection caused by Listeria monocytogenes, which may produce any several clinical syndromes, including stillbirth, listeriosis of newborn, meningitis, bacteriemia or localized infections.

Diagnostic/analytical methods used

isolation of L-monocytogenes from a normally sterile site (e.g. blood or cerebrospinal fluid or, less commonly, joint, pleural, or pericardial fluid).

Results of the investigation

Sporadic cases are reported in Slovakia

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

Trend of disease is stabile, sporadic cases from 2-10 cases per year, sporadic professional disease.

Table 7.2.A Listeriosis in man - species/serotype distribution

Listeria	Cases	Cases Inc
	8	0
Listeria spp.	8	0,15
congenital cases		
deaths		

Table 7.2.B Listeriosis in man - age distribution

Age Distribution	L. monocytogenes			Listeria spp.		
	All	M	F	All	M	F
<1 year						
1 to 4 years						
5 to 14 years						
15 to 24 years						
25 to 44 years	3	2	1			
45 to 64 years	3	1	2			
65 years and older	2	2				
Age unknown						
Total :	8	5	3	0	0	0

2.3.3. Listeria in foodstuffs

A. Listeria spp. in food

Monitoring system

Frequency of the sampling

At the production plant

Other: almost in all samples according the direction of SVFA SR

Methods of sampling (description of sampling techniques)

At the production plant

according to the valid STN

Diagnostic/analytical methods used

At the production plant

Other: STN EN ISO 11290

Table 7.1 Listeria monocytogenes in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Definition used	Units tested	<100 cfu/g	>100 cfu/g	L. monocytogenes
Other meat									
meat products									
ready-to-eat									
- at retail	SVFI			25 g		2867	10		10
Cheeses									
- at retail	SVFI			25 g		3196	10		10
Dairy products									
other products									
ready-to-eat									
- at retail	SVFI			25 g		3543			
Fishery products									
other									
- at retail	SVFI			25 g		114	2		2

Footnote

SVFI - State Veterinary and Food Institutes

2.4. VEROCYTOTOXIC ESCHERICHIA COLI

2.4.1. General evaluation of the national situation

A. Verotoxigenic Escherichia coli infections general evaluation

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

The monitoring system for Verotoxigenic E.coli in the Slovak republic has not been adopted. The investigations were performed on the basis of targeted investigations in differential diagnostics and under suspicoin of infection, documented by clinical signs.

2.4.2. Verocytotoxic Escherichia coli in humans

Table 11.3.A Verocytotoxic Escherichia coli infections in man - species/serotype distribution

Pathogenic Escherichia coli	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
HUS						
- clinical cases						
- lab. confirmed cases						
- caused by O157 (VT+)						
- caused by other VTEC						
E.coli infect. (except HUS)	16	0,29739	16	0,29739	0	0
- laboratory confirmed	16	0,29739	16	0,29739	0	0
- caused by 0157 (VT+)						
- caused by other VTEC	16	0,29739	16	0,29739	0	0

Table 11.3.B Verocytotoxic Escherichia coli infections in man - age distribution

Age Distribution	Verotoxigenic E. coli (VTEC)			VTEC O 157:H7			VTEC non-O 157		
	All	M	F	All	M	F	All	M	F
<1 year							14	7	7
1 to 4 years							0	0	0
5 to 14 years							0	0	0
15 to 24 years							1	1	0
25 to 44 years							1	0	1
45 to 64 years							0	0	0
65 years and older							0	0	0
Age unknown							0	0	0
Total :	0	0	0	0	0	0	16	8	8

2.4.3. Pathogenic Escherichia coli in foodstuffs

A. Verotoxigenic E. coli (VTEC) in food

Monitoring system

Frequency of the sampling

Almost in all imported samples and samples taken from market.

Methods of sampling (description of sampling techniques)

according the valid STN

Diagnostic/analytical methods used

STN EN ISO 16654

Table 11.2 Verocytotoxic Escherchia coli in food

	Source of information	Remarks	Epidemiological unit	Sample weight	Units tested	Units positive	VTEC O 157	VTEC O 157:H7
Bovine meat								
fresh								
- at processing plant	SVFI			10 g	54			
Poultry meat								
fresh								
- at processing plant	SVFI			10 g	17			
cow milk								
raw	SVFI			10 ml	82			
heat-treated	SVFI			10 ml	203			
Egg products	SVFI			10 g	1247			
Cheeses (1)	SVFI			10 g	626	1	1	
Other meat								
meat products	SVFI			10 g	1482	1	1	

(1) : sheep cheese

Footnote

SVFI - State Veterinary and Food Institute

2.4.4. Pathogenic Escherichia coli in animals

Table 11.1 Verocytotoxic Escherchia coli in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	VTEC O 157	VTEC O 157:H7
Cattle (bovine animals)							
calves (under 1 year)	SVFI		A	100	0		
Sheep	SVFI		A	15	0		
Pigs	SVFI		A	135	0		
Pet animals							
dogs	SVFI		A	33	0		
cats	SVFI		A	5	0		

Footnote

SVFI - State Veterinary and Food Institute
epidemiological unit - A - animal

2.5. TUBERCULOSIS

2.5.1. General evaluation of the national situation

A. Tuberculosis General evaluation

History of the disease and/or infection in the country

In Europe the bovine tuberculosis belongs still to the serious disease in humans and animals. Because this disease is "obligatory notifiable", it is possible to become acquainted yearly from OIE statistics with the incidence in bovine animals. The disease situation in TBC occurrence, in pursuance of the definition of the International Animal Health Code OIE is a territory of the country free of bovine tuberculosis in cattle till the prevalence of infected herds does not exceed 0,2 % of totally bred herds. This condition fulfilled also Slovakia as to 4. 3. 2005 (Commission Decision No. 2005/179/EC).
In Slovakia bovine tuberculosis was controlled within the national eradication programmme in the second half of the last century. In the years 1990 - 1999 the decrease of bovine tuberculosis incidence in cattle was recorded in Slovakia.. With the decreasing incidence of bovine tuberculosis in cattle also decrease of bovine tuberculosis in other animals was recorded in Slovakia.
The last occurrence of M. bovis in bovine animals in Slovakia, owner of agricultural cooperative Tupá, District Levice, year 1992.

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

from the epizootological viewpoint the risk in the Central Europe present currently above all the occurrence of bovine tuberculosis in Zoo animals and in wildlife. Hungary - wild boar population and forest deer, protected European bison in Poland

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

Bovine animals, pigs - no isolation of the complex M. tuberculosis.

Recent actions taken to control the zoonoses

yearly elaborated "Surveillance of bovine and avian TBC in the SR for the respective year", together with human service, epidemiological analysis of the incidence and prevalence of TBC occurrence in humans.

2.5.2. Tuberculosis in humans

2.5.3. Mycobacterium in animals

A. Mycobacterium bovis in Bovine Animals

Status as officially free of bovine tuberculosis during the reporting year

The entire country free

Slovakia is officially free of tuberculosis - Commission decision 2005/179/ES

Free regions

all regions

Monitoring system

Sampling strategy

description indicated above, maximum 1x /in 2 years performed tuberculination of bovine animals with simple skin test with bovine tuberculin in all animals over 2 years of age. Positive reagents in simple test are examined by comparative test earliest in 6 - 8 weeks, repeatedly positively reacted animals for bovine tuberculin are slaughtered and their lymph nodes are additionally examined laboratorily in the respective NRL for bovine tuberculosis. Tuberculosis changes identified in routine veterinary-hygienic examination of slaughtered bovine animals are also laboratory examined.

Frequency of the sampling

positive intravital tests - reagents for tuberculin, TBC changes at slaughterhouses

Type of specimen taken

Other: lymph nodes according to district competence,in valuable animals - lung lavage

Methods of sampling (description of sampling techniques)

3- packing, label, application form (accompanying report), cool 2 - 8 C0, or freezing, taking into so called sample container, transport into NRL

Case definition

detailed description

Diagnostic/analytical methods used

pathological-anatomical examination (judgement of changes),
histological, direct microscopy (bacterioscopy)- staining by method Z-N, cultivation on selective growth cultures -liquid and solid, identification of isolates - biochemically,
by biological trial, DNA-DNA by hybridization (probes), method of spoligotyping.
Examinations are covered by the state (Veterinary prevention and protection).

Vaccination policy

vaccination is not performed

Other preventive measures than vaccination in place

isolation of reagents, announcement of outbreak

Control program/mechanisms

The control program/strategies in place

. control programmes, procedures on the spot : intravital diagnostics, isolation
. current actions for the purpose of zoonosis control: surveillance
. proposals towards Community ...:

Recent actions taken to control the zoonoses

A)Single intradermal tuberculin test by mammalian tuberculin :
Examine
-once per year 33% of holdings in the district - all animals over 24 months of age
-once per year all animals over 24 months of age from all small holdings (farms of physical persons, who farm bovine animals for their own charge and do not introduce their products into the market)
-once per year bulls in insemination centre and bulls used for natural breeding,
Tests should be performed up to 12 months since the last examination.
-young bulls before the basic selection,
-in holdings with evidence of a significant changes indicating tuberculosis within post mortem inspection (suspicion of the tuberculosis) is the officially tuberculosis-free herd status suspended and tuberculination of all animals over six weeks of age is performed (immediately in the case if minimum 42 days elapsed after the last tuberculination)
B)Intradermal comparative test by mammalian tuberculin and avian tuberculin used for intradermal comparative test:
a)in the holdings with presence of positive reactors to mammalian tuberculin in the single intradermal tuberculin test
1.Follow up the procedure of Annex 2, Part I., 3 A, b) of the Ordinance of the government 280/2003 Coll.
-suspend the officially tuberculosis-free herd status
-slaughter the positive reactor
-carry out all prescribed examinations of the positive reagent
-the status of the herd shall remain suspended until such time as all laboratory examinations have been completed - if the presence of tuberculosis is not confirmed by laboratory examinations, the suspension of the officially tuberculosis-free status may be lifted following an intradermal comparative test of all animals over six weeks of age with negative results at least 42 days after the removal of the reactor animal
Or
2.if there is a suspicion of false positive test reaction or interference test reaction
-suspend the officially tuberculosis-free herd status
-isolate the positive reactor
-the officially tuberculosis-free status may be lifted following an intradermal comparative

test of all animals over six weeks of age with negative results performed at least 42 days after single intradermal test performance
b) in the holdings with inconclusive reactors to single intradermal tuberculin test with mammalian tuberculin (also when last single intradermal tuberculin test was performed previous year and reasonable suspicion of false positive reaction or interference reaction is in place as result e.g. presence of different mycobacteriae, evidence m.avium subsp. M.paratuberculosis, etc.)
1.Follow up the procedure of Annex 2, Part I., 3 A, c) of the Ordinance of the government 280/2003 Coll. - further test to clarify the status of inconclusive reactors the intradermal comparative test have to be used.
Intradermal comparative test inconclusive reactors are subjected to repetitive test after at least 42 days. If the animals after repeated intradermal comparative test are not negative, shall be deemed to be positive reactors -these animals are removed from the herd and after their slaughter, laboratory and epizootical examination is performed.
If tuberculosis is not confirmed, all animals over six weeks of age are subjected to another intradermal comparative test which is performed after at least 42 days from the removal of the positive reactor .
If the tuberculosis is confirmed, the officially tuberculosis-free status is to be withdrawn and the procedure of the Governmental ordinance 280/2003 Coll. on animal health problems affecting intra-Community trade in bovine animals and swine should be followed.
c) In the holdings with positive M.bovis or M.avium microbiological result and in the case of staff tuberculosis affection

Measures in case of the positive findings or single cases

slaughtering, additional laboratory examination, notification to NRL - SVFA BA - EU

Notification system in place

district veterinarian or inspector, DVFA, RVFA, SVFA
Results of examinations: from NRL to DVFA, to SVFA.

Table 1.1.3 Tuberculosis in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	M. bovis	M. tuberculosis
Goats	SVFI		A	0	0	0	0
Pigs	SVFI		A	83	0	0	0
Zoo animals	SVFI		A	0	0	0	0
Sheep	SVFI		A	0	0	0	0
Other animals	SVFI		A	16	0	0	0

Footnote

SVFI - State Veterinary and Food Institute
epidemiological unit - A - animal

1.1.1 Bovine tuberculosis - SLOVENSKA REPUBLIKA

MANDATORY	**CATTLE**		
Number of herds under official control:	11355	Number of animals under official control:	563550
	OTF bovine herds	**OTF bovine herds with status suspended**	**Bovine herds infected with tuberculosis**
Status of herds at year end (a):			0
New cases notified during the year (b):			0
	Units tested	**Units suspected**	**Units positive**
Routine tuberculin test (c) - data concerning herds:		0	0
Routine tuberculin test (c) - data concerning animals:		0	
	Animals slaughtered	**Animals suspected**	**Animals positive**
Routine post-mortem examination (d):		0	
		Herds suspected	**Herds confirmed**
Follow up of suspected cases in post-mortem examination (e):			0
Follow-up investigation of suspected cases: trace, contacts (f):			
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (g):		0	
Other routine investigations: tests at AI stations (h):			
	All animals	**Positives**	**Contacts**
Animals destroyed (i):	0		0
Animals slaughtered (j):			
VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):			0
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):			
	Samples tested	***M. bovis*isolated**	
Bacteriological examination (m):	0		

1.1.1 Bovine tuberculosis

MANDATORY	**CATTLE**		
Number of herds under official control:	11355	Number of animals under official control:	563550
	OTF bovine herds	**OTF bovine herds with status suspended**	**Bovine herds infected with tuberculosis**
Status of herds at year end (a):	10962	133	0
New cases notified during the year (b):		0	0
	Units tested	**Units suspected**	**Units positive**
Routine tuberculin test (c) - data concerning herds:	10188	0	0
Routine tuberculin test (c) - data concerning animals:	319866	0	0
	Animals slaughtered	**Animals suspected**	**Animals positive**
Routine post-mortem examination (d):	109248	0	0
		Herds suspected	**Herds confirmed**
Follow up of suspected cases in post-mortem examination (e):		0	0
Follow-up investigation of suspected cases: trace, contacts (f):		0	0
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (g):	0	0	0
Other routine investigations: tests at AI stations (h):	0	0	0
	All animals	**Positives**	**Contacts**
Animals destroyed (i):	0	0	0
Animals slaughtered (j):	0	0	0
VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):	0	0	0
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):	0	0	0
	Samples tested	***M. bovis*isolated**	
Bacteriological examination (m):	0	0	

Footnote

Data: District Veterinary and Food Administrations

1.1.1 Bovine tuberculosis - Bratislavsky kraj

MANDATORY	**CATTLE**		
Number of herds under official control:	11355	Number of animals under official control:	563550
	OTF bovine herds	**OTF bovine herds with status suspended**	**Bovine herds infected with tuberculosis**
Status of herds at year end (a):			0
New cases notified during the year (b):			0
	Units tested	**Units suspected**	**Units positive**
Routine tuberculin test (c) - data concerning herds:		0	0
Routine tuberculin test (c) - data concerning animals:		0	
	Animals slaughtered	**Animals suspected**	**Animals positive**
Routine post-mortem examination (d):		0	
		Herds suspected	**Herds confirmed**
Follow up of suspected cases in post-mortem examination (e):			0
Follow-up investigation of suspected cases: trace, contacts (f):			
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (g):		0	
Other routine investigations: tests at AI stations (h):			
	All animals	**Positives**	**Contacts**
Animals destroyed (i):	0		0
Animals slaughtered (j):			
VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):			0
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):			
	Samples tested	***M. bovis*isolated**	
Bacteriological examination (m):	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

brucellosis is reported mandatory by physician and microbiological labs

Case definition

Clinical picture compatible with brucellosis, e.g. acute or insidious onset of fever, night sweats, undue fatigue, anorexia, weight loss, headache and arthralgia

Diagnostic/analytical methods used

demonstration on specific antibody response, demonstration by immunoflorescence of Brucella sp. In a clinical specimen
Isolation of Brucella species from a clinical specimen

Additional information

For a probable case:
A single high titre

2.6.3. Brucella in foodstuffs

2.6.4. Brucella in animals

A. Brucella abortus in Bovine Animals

Status as officially free of bovine brucellosis during the reporting year

The entire country free

Slovakia is officially free of brucellosis (B.melitensis) - Commission decision 2005/179/ES

Free regions

all regions

Additional information

Requirements for declaration of a bovine herd as officially brucellosis-free, requirements for retention of the officially brucellosis-free status of a bovine herd, requirements for suspension of the officially brucellosis-free status of a bovine herd, requirements for withdrawal of the officially brucellosis-free status of a bovine herd, requirements for declaration a bovine herd as brucellosis-free, requirements for retention of the brucellosis-free status of a bovine herd, requirements for suspension of the brucelosis-free status of a bovine herd, requirements for withdrawal of the brucellosis-free status of a bovine herd are the part of the Annex 2 of the Ordinance of the Government of the Slovak Republic No. 280/2003 Coll. of 9 July 2003 on health problems affecting the trade with bovine animals and porcine animals. By this Ordinance of the Government the Council Directive 64/432/EEC was transposed in the full extend into the legal system of the Slovak Republic (text of this Ordinance of the Government is presented in Annex 1).

Monitoring system

Sampling strategy

Examination, standards for identification of the agent are presented in the Annex 4 to the above-mentioned Ordinance of the Government - it is the full transposition of the Annex C of the Council Directive 64/432/EEC.
Examine blood samples
- once per year 33% of holdings in the district - all animals over 24 months of age
- once per year all bovine animals over 24 months of age from all small holdings (farms of physical persons, who farm bovine animals for their own charge and do not introduce their products into the market)
- once per year bulls in insemination centre and bulls used for natural breeding and befeore basic selection of young breeding bulls,
Tests should be performed up to 12 months since the last examination.

Frequency of the sampling

Tests should be performed up to 12 months since the last examination.

Type of specimen taken

Blood

Case definition

abort case

Diagnostic/analytical methods used

According to Council Directive 64/432/EEC and OIE diagnostics techniques:
Serological tests:
Serum agglutination test
Complement fixation test
Rose bengal test
ELISA
Bacteriological tests:
Cultivation, isolation and identification of bacteria genus Brucella
Identification of bacteria (biotype):
Biochemical tests
Agglutination in monospecific antisera
Phage typing

Vaccination policy

In SR the vaccination at liquidation of brucellosis has been never used and only the radical or elimination method of eradication of a herd has been used.

Other preventive measures than vaccination in place

In the Slovak Republic there is obligatory to notify abort cases at which the suspicion from being happened due to the brucellosis occurrence exists, and such cases are examined by the competent veterinary administration authority.
Each bovine animal suspicious of brucellosis infection shall be notified to the competent veterinary administration authority and is subject to the official epizootological examination for brucellosis consisting of minimum 2 serological blood tests, including complement fixation test (CFT) and microbiological examination of appropriate samples.
During the time of suspicion which lasts until the negative results of tests mentioned in the previous paragraph are obtained, in case of the herd of the origin or transit or the suspected animal and herds epizoologically connected with it, the status of officially recognized as brucellosis-free will be suspended.
Bovine animals moved into the herd must originate from herds officially recognized as brucellosis-free status, and in case of bovine animals older than 12 months, it must have the titer of antibodies less than 30 IU agglutination for ml in given serum-aglutination test performed in compliance with Annex 4 of the Ordinance of the Government of the Slovak Republic No. 280/2003 Coll. on health problems affecting the trade with bovine animals and porcine animals, or they reacted negatively on each other test approved in accordance with EU reqirements during 30 days before the date of intorduction into the herd.

Control program/mechanisms

The control program/strategies in place

Requirements for declaration of a bovine herd as officially brucellosis-free, requirements for retention of the officially brucellosis-free status of a bovine herd, requirements for suspension of the officially brucellosis-free status of a bovine herd, requirements for withdrawal of the officially brucellosis-free status of a bovine herd, requirements for declaration a bovine herd as brucellosis-free, requirements for retention of the brucellosis-free status of a bovine herd, requirements for suspension of the brucelosis-free status of a bovine herd, requirements for withdrawal of the brucellosis-free status of a bovine herd are the part of the Annex 2 of the Ordinance of the Government of the Slovak Republic No. 280/2003 Coll. of 9 July 2003 on health problems affecting the trade with bovine animals and porcine animals. By this Ordinance of the Government the Council Directive 64/432/EEC was transposed in the full extend into the legal system of the Slovak Republic (text of this Ordinance of the Government is presented in Annex 1).

Recent actions taken to control the zoonoses

Examination of blood samples serologically
- in herds officially brucellosis-free - once a year all animals older than 24 months (together with EBL)
- once a year - breeding bulls at insemination stations, in a natural breeding and before the basic selection of breeding bullocks
Examinations shall be performed within 12 months from the last examination.

Notification system in place

In the Slovak Republic there is obligatory to notify abort cases at which the suspicion from being happened due to the brucellosis occurrence exists, and such cases are examined by the competent veterinary administration authority.
Each bovine animal suspicious of brucellosis infection shall be notified to the competent veterinary administration authority and is subject to the official epizootological examination for brucellosis consisting of minimum 2 serological blood tests, including complement fixation test (CFT) and microbiological examination of appropriate samples.
During the time of suspicion which lasts until the negative results of tests mentioned in the previous paragraph are obtained, in case of the herd of the origin or transit or the suspected animal and herds epizoologically connected with it, the status of officially recognized as brucellosis-free will be suspended.
Bovine animals moved into the herd must originate from herds officially recognized as brucellosis-free status, and in case of bovine animals older than 12 months, it must have the titer of antibodies less than 30 IU agglutination for ml in given serum-aglutination test performed in compliance with Annex 4 of the Ordinance of the Government of the Slovak Republic No. 280/2003 Coll. on health problems affecting the trade with bovine animals and porcine animals, or they reacted negatively on each other test approved in accordance with EU reqirements during 30 days before the date of intorduction into the herd.

B. Brucella melitensis in Sheep

Monitoring system

Diagnostic/analytical methods used

According to Council Directive 64/432/EEC and OIE diagnostics techniques:
Serological tests:
Serum agglutination test
Complement fixation test
Rose bengal test
ELISA
Bacteriological tests:
Cultivation, isolation and identification of bacteria genus Brucella
Identification of bacteria (biotype):
Biochemical tests
Agglutination in monospecific antisera
Phage typing

C. Brucella melitensis in Goat

Monitoring system

Diagnostic/analytical methods used

According to Council Directive 64/432/EEC and OIE diagnostics techniques:
Serological tests:
Serum agglutination test
Complement fixation test
Rose bengal test
ELISA
Bacteriological tests:
Cultivation, isolation and identification of bacteria genus Brucella
Identification of bacteria (biotype):
Biochemical tests
Agglutination in monospecific antisera
Phage typing

Table 2.1.3 Brucellosis in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive	B. melitensis	B. abortus	B. suis
Pigs	SVI		A	13641	0			
Other animals	SVI		A	508	0			

Footnote

SVI- State Veterinary Institute
epidemiological unit - A - animal

2.1.1 Bovine brucellosis

MANDATORY	CATTLE		
Number of herds under official control:	11355	Number of animals under official control:	563550
	OBF bovine herds	**OBF bovine herds with status suspended**	**Bovine herds infected with brucellosis**
Status of herds at year end (a):	10962	133	0
New cases notified during the year (b):	0	0	0
	Animals tested	**Animals suspected**	**Animals positive**
Notification of clinical cases, including abortions (c):	3275	0	0
	Units tested	**Units suspected**	**Units positive**
Routine testing (d1) - data concerning herds:	10188	0	0
Routine testing (d2) - number of animals tested:	308261	0	0
Routine testing (d3) - number of animals tested individually:	308261	0	0
		Herds suspected	**Herds confirmed**
Follow-up investigation of suspected cases: trace, contacts (e):		0	0
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (f):	0	0	0
Other routine investigations: tests at AI stations (g):	0	0	0
	All animals	**Positives**	**Contacts**
Animals destroyed (h):	0	0	0
Animals slaughtered (i):	0	0	0
VOLUNTARY	**CATTLE**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (k):	0	0	0
	Herds tested	**Herds suspected**	**Herds positive**
Other investigations: farms at risk (l):	0	0	0
	Samples tested	**Brucella isolated**	
Bacteriological examination (m):	318	0	

2.1.2 Ovine and caprine brucellosis

MANDATORY	SHEEP AND GOATS		
Number of holdings under official control:	2553	Number of animals under official control:	256092
	OBF ovine and caprine holdings	**OBF ovine and caprine holdings with status suspended**	**OBF ovine and caprine holdings infected with brucellosis**
Status of herds at year end (a):	2553	0	0
New cases notified during the year (b):	0	0	0
	Animals tested	**Animals suspected**	**Animals positive**
Notification of clinical cases, including abortions (c):	777	0	0
	Units tested	**Units suspected**	**Units positive**
Routine testing (d) - data concerning holdings:	1455	43	0
Routine testing (d) - data concerning animals:	20347	92	0
		Holdings suspected	**Holdings confirmed**
Follow-up investigation of suspected cases: trace, contacts (e):		0	0
	Animals tested	**Animals suspected**	**Animals positive**
Other routine investigations: exports (f):	42	0	0
	All animals	**Positives**	**Contacts**
Animals destroyed (g):	0	0	0
Animals slaughtered (h):	0	0	0
VOLUNTARY	**SHEEP AND GOATS**		
	Animals tested	**Animals suspected**	**Animals positive**
Other investigations: imports (i):	23	0	0
	Holdings tested	**Holdings suspected**	**Holdings positive**
Other investigations: farms at risk (j):	0	0	0
	Samples tested	**Brucella isolated**	
Bacteriological examination (k):	60	0	

Footnote

Data: District Veterinary and Food Administrations of the Slovac Republic

2.7. YERSINIOSIS

2.7.1. General evaluation of the national situation

2.7.2. Yersiniosis in humans

Table 8.3.A Yersiniosis in man - species/serotype distribution

Yersinia	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
	78	1	78	1	0	0
Y. enterocolitica	78	1,4498	78	1,4498	0	0
Y. enterocolitica O:3						
Y. enterocolitica O:9						

Table 8.3.B Yersiniosis in man - age distribution

Age Distribution	Y. enterocolitica			Yersinia spp.		
	All	M	F	All	M	F
<1 year	5	3	2	5	3	2
1 to 4 years	17	12	5	17	12	5
5 to 14 years	20	14	6	20	14	6
15 to 24 years	12	8	4	12	8	4
25 to 44 years	15	8	7	15	8	7
45 to 64 years	6	2	4	6	2	4
65 years and older	3	1	2	3	1	2
Age unknown	0	0	0	0	0	0
Total :	78	48	30	78	48	30

Table 8.3.C Yersiniosis in man - seasonal distribution

Month	Y. enterocolitica	Yersinia spp.
	Cases	Cases
January	5	5
February	10	10
March	3	3
April	10	10
May	3	3
June	7	7
July	5	5
August	6	6
September	9	9
October	9	9
November	6	6
December	5	5
not known	0	0
Total :	78	78

2.7.3. Yersinia in foodstuffs

2.7.4. Yersinia in animals

Table 8.1 Yersinia enterocolitica in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Y. enterocolitica	Y. enterocolitica O:3	Y. enterocolitica O:9
Pigs	SVFI,SVI			1	1	1	
Other animals	SVFI,SVI			1	1	1	

Footnote

SVFI - State Veterinary and Food Institutes
SVI - State Veterinary Institute
epidemiological unit - animal

2.8. TRICHINELLOSIS

2.8.1. General evaluation of the national situation

A. Trichinellosis General evaluation

History of the disease and/or infection in the country

Trichinellosis has been occurring in Slovakia for many decades as a sporadic disease in humans or in a form of smaller of minor epidemics. Since 1962 in Slovakia there were totally 12 epidemics of trichinellosis, whereas the biggest was in the year 1968. Occurrence of antibodies, eosinofilia and clinical signs were serologically confirmed in 336 patients. The disease agent was type Trichinella britovi, whereas clinical signs were mild and it did not come to a fatal case. Further epidemics in the year 2001 was caused by type T. spiralis.
Occurrence of trichinellosis in domestic pigs is only sporadic in animals bred for the own need. Trichinellosis circulates in wildlife out of which wild boar population is the most risky for the transmission of the disease. Products from meat of these animals that were not adequately heat.-treated, were the most frequent source of the infection in humans. Reservoir of natural cycle of trichinellosis is a red fox is which the prevalence of trichinellosis quickly increases. In the year 2000 the prevalence was 4,9 %, in the year 2002 already 8,1 % and in the year 2004 as a whole 13,1 %.
The risk of creation of domestic cycle of trichinellosis increases due to increasing number of foxes occurring in towns and villages. In Slovakia often brown bear is infected, whose meat is consumed, however also other carnivore, where mainly wolf for its migration for long distances represents the risk of creation of new outbreaks of trichinellosis.
Out of types Trichinella spp. circulating in the nature it is mainly T. britovi and type T. spiralis occurs only rarely. In the year 2003 on a pig farm type T. pseudospiralis, was found by which pigs, cats, rats and also birds living on a farm were infected. The farm was gradually liquidated and measures were taken so as to prevent that trichinellae could not get into foodstuffs intended for human consumption.
Endemic areas of trichinellosis occurrence are East and Central Slovakia. In West Slovakia only rare occurrence of a parasite in humans, wild boar population and in red fox is found so far.

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

All animals whose meat is intended for human consumption, are examined for the presence of larvae Trichinella spp. Pigs at slaughterhouses are examined by digestion method in compliance with the valid legislation and pigs slaughtered individually are examined by compression method. In the year 2004 larvae of trichinellae were found. in 1 pig slaughtered individually. In the year 2003 trichinellosis was found from the same region in 2 pigs from the holding where type T. pseudospiralis was diagnosed.
In wild boar population trichinellosis was found in two hunted animals, what represents only 0,02 % prevalence. In the year 2003 totally 4 animals were positive for trichinellosis (prevalence 0,06 %). Trichinellosis was not found in brown bear. In red foxes examined from West, Central and East Slovakia the trichinellosis was detected in 90 animals, what represents 13,10 % prevalence. The same prevalence was also in the year 2003. In this year only type T. britovi was found in wildlife.

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

In finding of Trichinella spp. in meat of slaughtered animals, the animal carcasses are confiscated and processed in processing (rendering) plant. Upon import of meat in which larvae of trichinellae could have been present (pigs, horses, game), the import either frozen meat or certificate on its examination for trichinellosis are required.

Recent actions taken to control the zoonoses

Control of meat of slaughtered animals is provided in compliance with EU legislation (Council Directive 77/96 EEC).

2.8.2. Trichinellosis in humans

Table 4.2.A Trichinellosis in man - species/serotype distribution

Trichinella	Cases	Cases Inc	Autochtone cases	Autochtone Inc	Imported cases	Imported Inc
	1	0	0	0	0	0
Trichinella spp.	1	0,02	0	0	0	0

Table 4.2.B Trichinellosis in man - age distribution

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

2.8.3. Trichinella in animals

A. Trichinella in pigs

Monitoring system

Frequency of the sampling

Every slaughtered animal is sampled

Type of specimen taken

Diaphragm muscle

Diagnostic/analytical methods used

Artificial digestion method of collective samples

Control program/mechanisms

Recent actions taken to control the zoonoses

The monitoring system for Thermophilic Campylobacter in the Slovak republic has not been adopted.

B. Trichinella in horses

Monitoring system

Sampling strategy

samling after the slaughter

Frequency of the sampling

Every slaughtered animal is sampled

Type of specimen taken

Musculus masseter

Methods of sampling (description of sampling techniques)

taking over 10 g of the specimen

Table 4.1 Trichinella in animals

	Source of information	Remarks	Epidemiological unit	Animals tested	Animals positive
Pigs	PI SAS,SVFI,SVI		animal	1151763	2
Wildlife					
wild boars	PI SAS,SVFI,SVI		animal	15063	2
foxes	PI SAS,SVFI,SVI		animal	687	90
badgers	PI SAS,SVFI,SVI		animal	1	0
wolves	PI SAS,SVFI,SVI		animal	1	0
bears	PI SAS,SVFI,SVI		animal	26	0

Footnote

PI SAS - Parasitological Institute SAS
SVFI - State Veterinary and Food Institutes
SVI - State Veterinary Institute

2.9. ECHINOCOCCOSIS

2.9.1. General evaluation of the national situation

A. Echinococcus spp general evaluation

History of the disease and/or infection in the country

Echinococcosis is a disease caused by tapeworms belonging to the genus Echinococcus. Cystic echinococcosis is caused by tapeworm E. granulosus parazitizing in dogs and alveolar echinococcosiss is caused by E. multilocularis parazitizing in red foxes and other carnivorae. Humans became infected by oral way with eggs. Transmission is performed by contact with infected animals that excrete eggs by faeces (dog, cat), or by contaminated food. With regard to a long incubation period it is very difficult to determine the source of infection. Larval stages of tapeworm are localized mainly in liver, less in other organs and form the cysts (E. granulosus), or infiltratively inter-grow the parenchym of the organ (E. multilocularis).
Cystic echinococcosis occurs in Slovakia long-termly. In humans the occurrence, confirmed by display methods and also serologically, only sporadic (yearly 1 - 10 cases). In pigs the prevalence dropped from 4 % in the year 1971 to 0,12 % in the year 2003. In the same period in sheep and goats the prevalence was maintained at the level 0,5 - 1 % with considerable increase in some years, with maximum 12,0 % in the year 1995. In the year 2003 it was found in 1,69 % animals at slaughterhouses.
Alveolar echinococcosis in humans was diagnosed in Slovakia only in the year 2001 and up to the year 2003 totally 4 cases occurred in northern areas.
The first cases of occurrence of E. multilocularis in foxes were found coprologically (ELISA and PCR) in the year 1999. In the next years the prevalence of tapeworm was increasing in Slovakia from 24,8 % in the year 2000 to 33,9 % in the year 2002 with the subsequent decrease to 21,9 % in the year 2003. In the whole period the highest prevalence was in Å½ilina and Presov region, the lowest in Bratislava and Trnava region.

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

Echinococcosis (larvocysts E. granulosus) were found in cattle, sheep, goats and also in pigs. E. granulosus in cattle increased from 1 case in the year 2003 to 45 cases in the year 2004, in sheep and goats decreased from 1951 cases in the year 2003 to 26 cases in the year 2004. Echinococcosis slightly decreased in pigs from 1681 cases in the year 2003 to 1313 cases in the year 2004.
Adult tapeworm E. multilocularis was found by autopsy in 148 red foxes out of 472 examined ones. Monitored were foxes on North and East of the Slovak Republic.

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

Eggs of Echinococcus are disseminated in the environment by the host of tapeworms (dogs, foxes and other carnivorae). Contaminated environment, forest fruits, vegetable and non-compliance with the hygienic principles are the main risk factors of transmission of this zoonosis. Monitoring of occurrence of adult tapeworms in carnivorae and larval forms in slaughter animals is important for detection of risk areas in the territory of the country. These

knowledge serve for the proposal of preventive measures for protection of human health.

Recent actions taken to control the zoonoses

Organs of animals slaughtered at slaughterhouse are controlled for the presence of larvocysts Echinococcus. Occurrence of E. multilocularis in red foxes and other carnivore is monitored based on agreement with the SVFA SR.

Suggestions to the Community for the actions to be taken

For each zoonosis, and also for echinococcosis, it is necessary to create EU reference laboratories and subsequently National reference laboratories and to provide their activity from the financial point of view.

2.9.2. Echinococcosis in humans

A. Echinococcus spp in humans

Reporting system in place for the human cases

Disease is reported mandatory by physicians and microbiological labs.

Case definition

Clinical picture compatible with echinococcosis, which may produce any several clinical syndromes, varying with cyst size and location

Diagnostic/analytical methods used

Histopathologia
A combination of imaging techniques and serological tests(e.g. indirect haemaglutination, immunodiffusion, immunoblot assay

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

Sporadic or rare cases.

2.9.3. Echinococcus in animals

Table 9.1 Echinococcus sp. in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Echinococcus spp.	E. multilocularis	E. granulosus
Cattle (bovine animals)	PI SAS			115398	35		
Sheep	PI SAS			83052	26		
Pigs	PI SAS			1151763	1303		
Pet animals							
cats	PI SAS			10			
Wildlife							
foxes	PI SAS			490		148	

Footnote

PI SAS - Parasitological Institute of SAS

2.10. TOXOPLASMOSIS

2.10.1. General evaluation of the national situation

A. Toxoplasmosis general evaluation

History of the disease and/or infection in the country

Status of epidemiological situation in the Slovak Republic is demonstrated based on statistical data for the last years:

Year	Number of sample	Number of animals	%
1994	1646	228	13,8
1995	1992	187	9,4
1996	1173	180	15,3
1997	4033	484	12,0
1998	6737	595	8,8
1999	3575	240	6,7
2000	2912	119	4,09
2002	493	101	20,4
2003	505	48	9,5
2004	462	75	15,8

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

Toxoplasmosis of animals is according to the O.I.E. methodics actual manual of standards for diagnostic tests and vaccines.
In the Slovak Republic it does not exist any official monitoring programme for diagnostics of this zoonosis and it is also not subject to obligatory notification.
6 state veterinary institutes examine blood sera of domestic animals, wildlife and farm animals. Complement fixation test is used and antibody levels against antigen Toxoplazma gondi are being found.
In indicated cases, such as aborts, it is recommended to the animal owner the repeated examination after 21 days.
In the year 2004 totally 462 samples were examined in Slovakia and as a whole there were 73 positive animals. From the table it follows that the highest seropositivity is in category of goats / 30, 1 % /, in principle it is in accordance with the statistical evaluation from the last years.
We have found higher sensitivity of goats to infection Toxoplazma gondi compared to sheep category, for comparison we present the data for the period of 3 years:
1996 sheep 3,5 % over infestation
goats 31,8%
1997 sheep 7,8%
goats 18,9%
1998 sheep 3,72%
goats 19,7%

2.10.2. Toxoplasmosis in humans

Table 10.2.A Toxoplasmosis in man - species/serotype distribution

Toxoplasma	Cases	Cases Inc
	154	2
Toxoplasma spp.	154	2,86
congenital cases	1	0,02

Table 10.2.B Toxoplasmosis in man - age distribution

Age Distribution	Toxoplasma spp.		
	All	M	F
<1 year	1		1
1 to 4 years	7	6	1
5 to 14 years	41	21	20
15 to 24 years	52	22	30
25 to 44 years	43	12	31
45 to 64 years	10	2	8
65 years and older			
Age unknown			
Total :	154	63	91

2.10.3. Toxoplasma in animals

Table 10.1 Toxoplasma gondii in animals

	Source of information	Remarks	Epidemiological unit	Units tested	Units positive
Cattle (bovine animals)	SVFI,SVI		animal	33	7
Sheep					
Goats	SVFI,SVI		animal	53	16
Solipeds	SVFI,SVI		animal	12	0
Pet animals					
dogs	SVFI,SVI		animal	62	18
cats	SVFI,SVI		animal	183	9
Other animals	SVFI,SVI		animal	119	23

Footnote

SVFI - State Veterinary and Food Institutes
SVI - State Veterinary Institute

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

The rabies has been well known on the territory of current Slovak Republic for many years. There are existing records originating at the end of 19th century. The first legal provisions about transmissible diseases are recorded in the Article 7 of the Ugrian collection of law from 1888, adopted in the ancient Austrian-Ugrian Kingdom, the part of which was also the territory of the Slovak Republic. These provisions were in force till the beginning of the 50´s.
After the World War II, the National Assembly of the Czechoslovakia adopted in 1950 the Act No. 187/1950 on improvement of the agriculture, in which the state veterinary service, responsible for all veterinary tasks, including animal health tasks and eradication programmes was established. This act laid down the obligation of notification some diseases, including rabies. However, based on information from the available materials, we may deduce, that the obligatory notification was already laid down in the Ugrian collection of law.
The incidence of rabies was after the World War II roughly about of 20% of all tested animals. In the time period of 1953-1974 11.329 animals were tested, out of which 2.268 were rabies positive. The fox incidence presented 70% of all positive animals, what correlated with data collected before the first oral antirabic fox's vaccination programme.
The first oral antirabic fox's vaccination programme started in 1994. This programme ran in two campaigns, one in spring, the other one in autumn. Fix-wing airplane and by hand application were used as well. For this programme the vaccine baits containing the virus strain Vnukovo 32/107 and SAD Bern was used. In consequence of lack of money that programme was stopped after sixth campaign in 1998.
The epidemiological situation of the rabies in wildlife according to established oral vaccination programme was markedly on the mend in 2000 and 2001. Consequently the rise of the immunity status of the fox population has increased the fox density. The fox population's density estimated on the number of hunted animals during the programme has been increased from 19.500 to 23.000 foxes in 2001 and very strong in the second half of year 2002 and the first half of year 2003. The number of hunted fox in 2002 was 22.251 animals, what encourages us to estimate the number of fox population of 28 to 30 thousand of animals - 0,57 - 0,61 fox per square kilometre (see Figure No. 2 and Annex). This stay of fox population has been related to the comedown of the favourable progress of the rabies situation. During this fast growth of the fox population the increase of rabies positive foxes in such level at first time since beginning the programme has been recorded (107 positive foxes in the 1. quarter of 2003)

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

Rabies is in the Slovak Republic is an endemic disease occurring in the silvatic form with decreasing occurrence and the main host and vector species is red fox

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

the relevance in the first case is low (carnivores - non-food animals) in the second case the animals present the main risk to human rabies

2.11.2. Rabies in humans

A. Rabies in humans

Reporting system in place for the human cases

Mandatory

Case definition

Rabies is an acute encephalomyelitis that almost always progress to coma or death within 10 days after the first symptom.

Diagnostic/analytical methods used

detection of direct fluorescent antibody of viral antigens in a clinical specimen
Detection of rabies nucleic acid in clinical specimen
Isolation of rabies virus from saliva, cerebrospinal fluid, or central nervous system tissue identification of a rabies-neutralising antibody titre in the serum or cerebrospinal fluid of an unvaccinated person

History of the disease and/or infection in the country

Disease is reported many years.

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

Last case was reported in 1990 after contact with fox

2.11.3. Lyssavirus (rabies) in animals

A. Rabies in dogs

Monitoring system

Sampling strategy

Samples for examination are sent as soon as possible. Before sending it is necessary to store them at temperature up to 40 C, in order to be adequately cooled.
The sample of the whole animal is sent wrapped in PVC bag put into good closed, firm packing with sufficient amount of absorption material preventing leakage of the contents. Sample of the head with first vertebra is sent enwrapped into fabric moistened by 0,5% solution of formaline or vinegar. Such enwrapped sample is put into impermeable packing (PVC bag) and then into a firm packing with absorption material.
Sample must be identifiable also inside of the packing. Accompanying document is attached to the sample so as to prevent its contamination and at taking over the sample in approved veterinary laboratories it could be removed without handling the sample.
Diagnostics is carried out by the State Veterinary and Food Institutes. The State Veterinary Institute Zvolen is a reference laboratory of rabies.

Case definition

clinical signs of rabies in animal with anamnesis of contact with rabid animal or human, or unknown animal, which might be rabid, or without anamnesis and laboratory confirmation of rabies

Diagnostic/analytical methods used

Other: ELISA,FAVN,FAT,MIT,RT-PCR

Vaccination policy

mandatory antirabic vaccination of domestic carnivores over three months of age with annual revaccination

Other preventive measures than vaccination in place

movement control system and system of shelters for stray animals

Control program/mechanisms

The control program/strategies in place

National programme of rabies eradication in the Slovak Republic/mandatory vaccination in domestic carnivores as well as oral antirabic vaccination in wildlife red fox, identification and registration of pets, movement control, laboratory diagnosis of each suspected domestic animal and control of fulfillment of National programme by veterinary database.

Recent actions taken to control the zoonoses

mandatory notification of cases and suspicions, mandatory antirabic vaccination and movement control and co-operation between animal heath and human health authorities

Suggestions to the Community for the actions to be taken

establishing Community register of pet animals for which the Pet Passport has been issued, by which will be the competent authorities able to verify validity of Pet Passport and antirabic vaccination maybe similar to Slovak central register of pets

Measures in case of the positive findings or single cases

The measures are ordered by the District Veterinary and Food Administration in compliance with the § 8, para 3, letter f) of the Act No. 488/2002 Coll. ll.
The respective DVFA at suspicion of rabies occurrence in domestic animals orders to natural and legal persons the measures for control of animal diseases and determines the date for their fulfilment, by which
a) it orders
1. catching of stray animals by professionally eligible natural or legal persons which means a person who following passing an examination before board of examiners finished the training Catching of stray or lost animals at the Institute for Postgraduate Studies in Kosice and obtained a Certificate on professional eligibility for the performance of catching of lost, abandoned and stray animals or by other person performing this activity under the supervision of professionally eligible natural or legal person,
2. disinfection of the place of killing or death of rabid animal and also thorough disinfection and incineration of all items which could have come into contact with rabid animal,
3. safe disposal of dead and killed animals by rendering plant,
4. isolation and monitoring of all susceptible animals which came or could have come into contact with an animal suspicious of rabies,
5. safe disposal of milk obtained from cows suspicious of rabies and prohibition of the use of products of warm-blooded animals for human consumption and for feeding purposes if these animal came or could have come into contact with an animal suspicious of rabies,
6. obligation to report each case of exposition of people and animals, behaviour changes in domestic animals, death of wildlife in an outbreak and in its nearness,
b) it prohibits
1. movement and collection of susceptible animal species,
2. free movement of susceptible animals in an outbreak,
The respective District Veterinary and Food Administration in case of non-confirmation of rabies occurrence lifts the measures for disease control.
The respective District Veterinary and Food Administration at confirmation of rabies occurrence in domestic animals extends the previous measures for disease control by further measures for disease control and determines to the natural and legal persons the date for their fulfilment by which
a) it defines an rabies outbreak,
b) it orders in an outbreak
1. its marking with warning tables with writing "CAUTION RABIES !"
2. killing of susceptible animals which came into contact with an animal positive to the presence of rabies antigen,
3. to perform the registration of dogs and cats and protective vaccination of dogs, cats and other

carnivore over 3 months of age which have not been vaccinated against rabies so far or since the last antirabic vaccination the period longer than 1 year elapsed, provided that they did not come into contact or they did not have the possibility to come into contact with an animal positive to the presence of rabies antigen,
4. to perform protective vaccination of susceptible domestic animals; it will permit to use milk and other products obtained from them for the human consumption and feeding purposes only following gaining the immunity (this period will be stated based on the date of vaccine manufacturer).

Notification system in place

Based on the § 35, para 2, letter a) of the Act No. 488/2002 Coll. ll. each natural or legal person authorized to dispose of live animals is obliged to notify without delay to the veterinary administration authority any suspicion of the disease and death of any animal and to allow examination of such animal.
In case of failing to report any suspicion of the disease, an animal's death or failing to allow its examination, is committed
- a natural person an offence according to the § 43, para 1, letter e) and a penalty shall be imposed according to the § 43, para 2 up to 10 000 SKK,
- a legal or natural person authorized to perform business activities an administrative infringement according to the § 44, letter g) of Act 488/2002 Coll.ll. and a penalty shall be imposed according to the § 45, para 1, letter d) up to 5 000 000 SKK.

Results of the investigation

Investigations of the human contacts with the positive cases_Art. 16 para (6) Act 488/2002 Coll. On veterinary care and on amendments of some acts as amended
(6) Owner or keeper of animal is obliged to ensure the antirabic vaccination in susceptible carnivore and to ensure, without any delay, veterinary examination of animals that caused injury to human being

Investigations of the human contacts with positive cases

Art. 16 para (6) Act 488/2002 Coll. On veterinary care and on amendments of some acts as amended
(6) Owner or keeper of animal is obliged to ensure the antirabic vaccination in susceptible carnivore and to ensure, without any delay, veterinary examination of animals that caused injury to human being

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

Rabies in the Slovak Republic is an endemic disease occurring in the silvatic form with decreasing occurrence and the main host and vector species is red fox

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

the relevance in the first case is low (carnivores - non-food animals) in the second case the animals present the main risk to human rabies

Table 5.1 Rabies in animals

	Source of information	Remarks	Animals tested	Animals positive
Cattle (bovine animals)	SVFI,SVI		14	
Sheep	SVFI,SVI		4	1
Goats	SVFI,SVI		3	
Pigs	SVFI,SVI		1	
Wildlife				
bats	SVFI,SVI			
foxes	SVFI,SVI		1563	47
other	SVFI,SVI		108	5
all	SVFI,SVI			
Pet animals				
dogs	SVFI,SVI		384	1
cats	SVFI,SVI		276	3
other	SVFI,SVI			

Footnote

SVFI - State Veterinary and Food Institutes
SVI - State Veterinary Institute

3. INFORMATION ON SPECIFIC INDICATORS OF ANTIMICROBIAL RESISTANCE

3.1. E. COLI INDICATORS

3.1.1. General evaluation of the national situation

A. E. coli general evaluation

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

The monitoring system for Antimicrobial resistance in E.coli in the Slovak republic has not been adopted.

3.1.2. Antimicrobial resistance in *Escherichia coli* isolates

4. 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, epidemological investigations and reporting of foodborne outbreaks

Food-borne outbreaks are reported by physicians on the Public Health Institutes on the regional level to the department of Epidemiology. Regional epidemiologist provide investigation , organise antiepidemic measure including investigation of foods which are suspected as factor of transmission

National evaluation of the reported outbreaks in the country:

Trends in numbers of outbreaks and numbers of human cases involved

Number of outbreaks 50-70 per year
number of cases within one outbreak : 10-200 cases

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

mayonaisse from raw eggs, eggs products preparing by insufficient temperature,
ice-cream,
agent: salmonella enteritidis.

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

In previous time restaurants, canteens, last 5 years households- family celebrations

Table 12. Foodborne outbreaks in humans

Causative agent	General outbreak	Family outbreak	Total Number in persons			Source			Type of evidence	Location of exposure	Contributing factors
			ill	died	in hospital		Suspected	Confirmed			
1	2	3	4	5	6	7			8	9	10
Salmonella - S. Enteritidis		x	12			potatos mayonnaise salad	x				
Salmonella - S. Enteritidis	x		10			meat spread,	x			school	
Salmonella - S. Enteritidis		x	11			whipped egg-whites cake	x			family celebration	
Salmonella - S. Enteritidis	x		15			chiken soup,boliled eggs,lentil sauce	x			school	
Salmonella - S. Enteritidis	x		19			mayonnaise salad,egg,fried steak	x			family hotel	
Salmonella - S. Enteritidis	x		13			whipped egg-white cake	x			pension	
Salmonella - S. Enteritidis	x		13			potatos salad		x		nursery school	S. excrete by cook
Salmonella - S. Enteritidis		x	36			cake	x			family celebration	
Salmonella - S. Enteritidis	x		16			cake	x			factory	
Salmonella - S. Enteritidis		x	10			cake filled with unboiled	x				
Salmonella - S. Enteritidis	x		17			unclear					
Salmonella - S. Enteritidis		x	10			cake filled with unboiled	x				
Salmonella - S. Enteritidis	x		10			soya sauce		x			
Salmonella - S. Enteritidis	x		19			unclear				restaurant	
Salmonella - S. Enteritidis	x		108			dumpling		x		factory	
Salmonella - S. Enteritidis		x	14			potatos salad with eggs	x			family	
Salmonella - S. Enteritidis		x	11			mayonnaise salad	x			family cottage	
Salmonella - S. Enteritidis	x		14			unclear				school	
Salmonella - S. Enteritidis	x		13			spaghetti with meat and cheese	x			school	
Salmonella - S. Enteritidis	x		17			chicken with cream ang gnocchis	x			factory canteen	
Salmonella - S. Enteritidis	x		21			gnocchis with eggs,cake with cream	x			factory canteen	

Salmonella - S. Enteritidis	x		25			unclear				school	
Salmonella - S. Enteritidis		x	24			eggmayonnaise		x		family celebration	
Salmonella - S. Enteritidis	x		39			unclear				sanatorium	
Salmonella - S. Enteritidis	x		18			fried chicken				restaurant	
Salmonella - S. Enteritidis		x	18			sausage and brawn		x		school (homemade product)	
Salmonella - S. Enteritidis	x		28			cakes	x			school (homemade product)	
Salmonella - S. Enteritidis	x		10			dough	x			school (homemade product)	
Salmonella - S. Enteritidis	x		103			combinate food	x			nursery school	
Salmonella - S. Enteritidis - PT 8	x		29			pub-crawl dumpling	x			factory	
Salmonella - S. Enteritidis - PT 8		x	13			potatos mayonnaise salad	x			family celebration	
Salmonella - S. Enteritidis - PT 13a	x		18			ground steak with cheese puree-secondary	x			canteen	
Salmonella - S. Enteritidis - PT 13a		x	15			mayonnaise salad		x		celebration	
Salmonella - S. Enteritidis - PT 8	x		14			fat,steak with mashrooms		x		pension	
Salmonella - S. Enteritidis - PT 8	x		38			dumpling, puree		x		restaurant	
Salmonella - S. Enteritidis - PT 8	x		10			pork and salad	x			factory	
Salmonella - S. Enteritidis - PT 8	x		125			dumpling		x		nursery school	
Salmonella - S. Enteritidis - PT 8	x		11			unclear				school	cook with inaparent infection
Salmonella - S. Enteritidis - PT 5(1)	x		25			unclear				school	
Salmonella - S. Enteritidis - PT 21	x		12			chiken	x			chool canteen	
Salmonella - S. Enteritidis - PT 8	x		17			combinated food	x			hotel restaurant	
Salmonella - S. Enteritidis - PT 21		x	12			potatos salad with eggs		x			

(1) : S.enteritidis PT5a