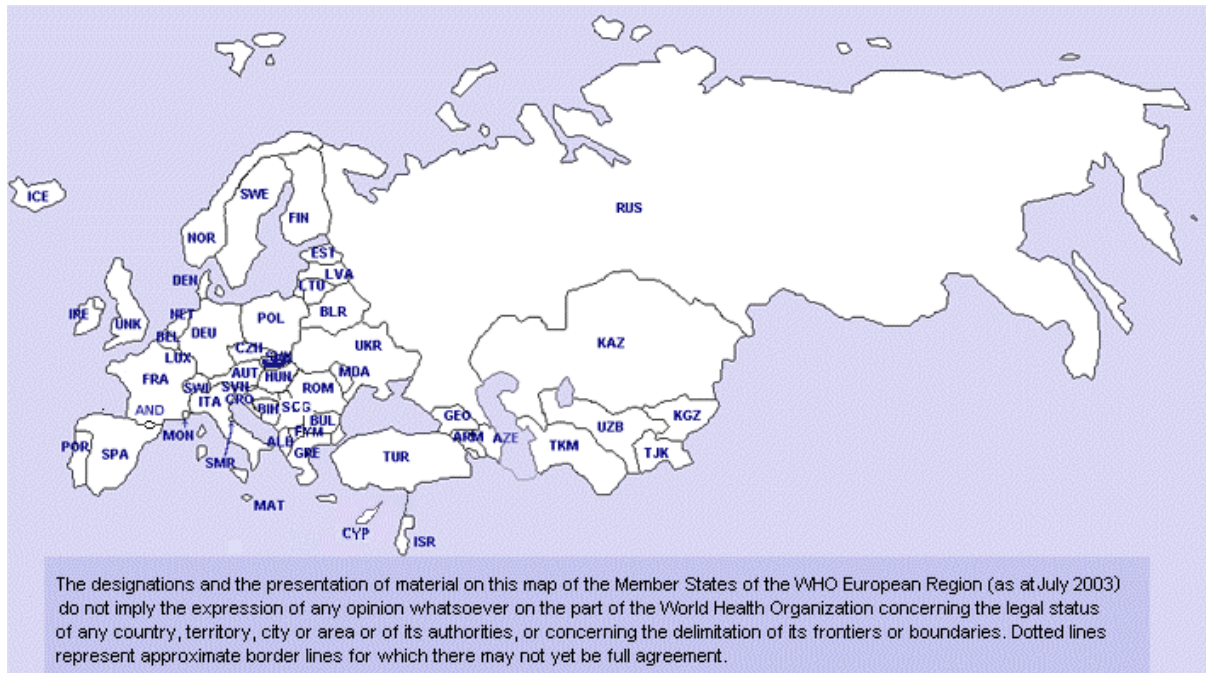


SLOVAKIA

Population 1999: 5 395 324

Population 2000: 5 402 547

Area: 48 845 km²



1. General information

1.1 Organizational structure

In Slovakia (country abbreviation: SK), the surveillance of foodborne infections at the national level is coordinated by the national public health officer, the head of the Public Health Service, seated at the Ministry of Health. Special supporting documents for the officer's decision-making are prepared at the National Public Health Institute (ŠZÚ SR, prior to 1994 NÚHE) in Bratislava. In 1996, the public and administrative organisation of Slovakia changed, and the number of regions and districts increased to eight regions and 79 districts. However, the network of Public Health Institutes (ŠZÚs) has not changed substantially. There are 36 Public Health Institutes with territorial competence over 79 districts, and eight of them fulfil the tasks of Regional Public Health Institutes, as well as form a link between the top and basic levels of the Public Health Service.

For the control of foodborne infections, the Department of Epidemiology, the Department of Food Hygiene, and the Department of Public Hygiene of the Public Health Institutes co-operate closely. Inspection of food production establishments is the duty of the Veterinary Services under the Ministry of Agriculture and Food.

1.2 Collection of information and data

Each doctor who diagnoses or suspects a case of a notifiable infectious disease is obliged to inform the District ŠZÚ on a standard form. In urgent or unusual cases, faster communication

methods are used. Microbiological laboratories report each *Salmonella* and *Shigella* isolation to an epidemiologist at the ŠZU. All notifiable infectious diseases are registered in the Central Register of infectious diseases according to the ICD 10 code (Figure SK 1).

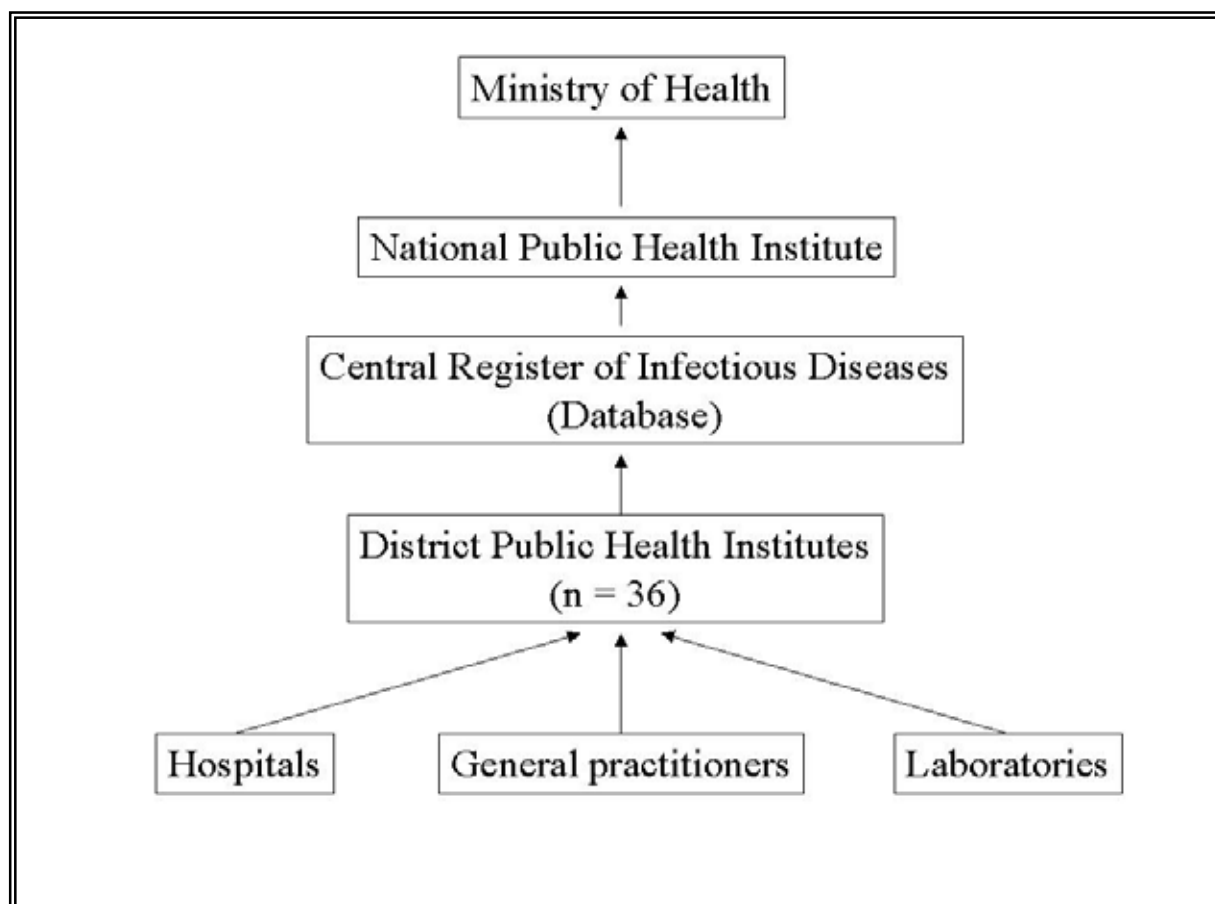
Cases that are linked in any way are considered an outbreak. Otherwise, they are registered as sporadic cases. An epidemiological investigation of every single case is compulsory and comprehensive, including investigations essential for establishing the source of infection, the factors of transmission, and the implementation of containment measures. An official standard questionnaire is completed for every focus of infection. Special attention is paid to food- and waterborne diseases.

The notification of a severe case, cases in infants and toddlers, and cases belonging to outbreaks (also as a consequence of an active search for mild cases) is rather accurate. The individual doctors' interest in the verification of the aetiology of diarrhoeal diseases also influences the preciseness of notification. With regard to sporadic adult and mild cases, considerable underreporting must be taken into account when interpreting the statistical data.

Figure SK 1

Surveillance system for foodborne diseases

SLOVAKIA 1999-2000



1.3 Database

Each individual report is fed into the CD Information System in the District ŠZÚ and dispatched to the Central Register in ŠZÚ Banská Bystrica on a weekly basis. The database contains all the relevant data on every case of a notified disease.

1.4 Information output

Data is compiled and analysed in the ŠZÚ of the Banská Bystrica district, and monthly and annual reports are disseminated to all ŠZÚs in Slovakia.

1.5 The outbreak reporting system

Practising medical doctors report by telephone the emergence of an outbreak immediately following the assertion of a suspicion to the territorially relevant Public Health Institute. From these institutes the emergence of a new outbreak is reported, along with other serious situations endangering the health status of the population, to the Ministry of Health of the SR. Notification takes place weekly by fax or e-mail, every Friday. Upon termination of an outbreak, the investigating epidemiologists in the area prepare a final report and fill in the questionnaire "Final report on the outbreak of foodborne infections" in the EPI-Info programme. This questionnaire was prepared in the Slovak language on the basis of the questionnaire "Report of Incident" recommended by the WHO Surveillance Programme for Control of Foodborne Infections and Intoxications in Europe. The use of the questionnaire was initiated in 1995 as a trial. Practice has shown, however, that it contained a large amount of data that is impossible to statistically evaluate and interpret. Thus, the questionnaire was adjusted and by and large simplified. The questionnaire is sent on a diskette or by e-mail to the National Public Health Institute in Bratislava, where the data on outbreaks are processed annually. Valid data on outbreaks has been obtained in this manner since 1997.

2. Statutory notification

A total number of 25709 and 27788 cases of foodborne infections and intoxications were notified in 1999 and 2000. The most frequently notified disease was salmonellosis, with 74% and 65% of the notified cases in 1999 and 2000 respectively, followed by shigellosis, accounting for 4,5% and 10,4% of cases for the years in question. Campylobacteriosis accounted for 4,6% and 4,8% of the notified cases in 1999 and 2000 (Table SK 1). An overview of the foodborne diseases notified between 1992 and 2000 is given in Figure SK 2.

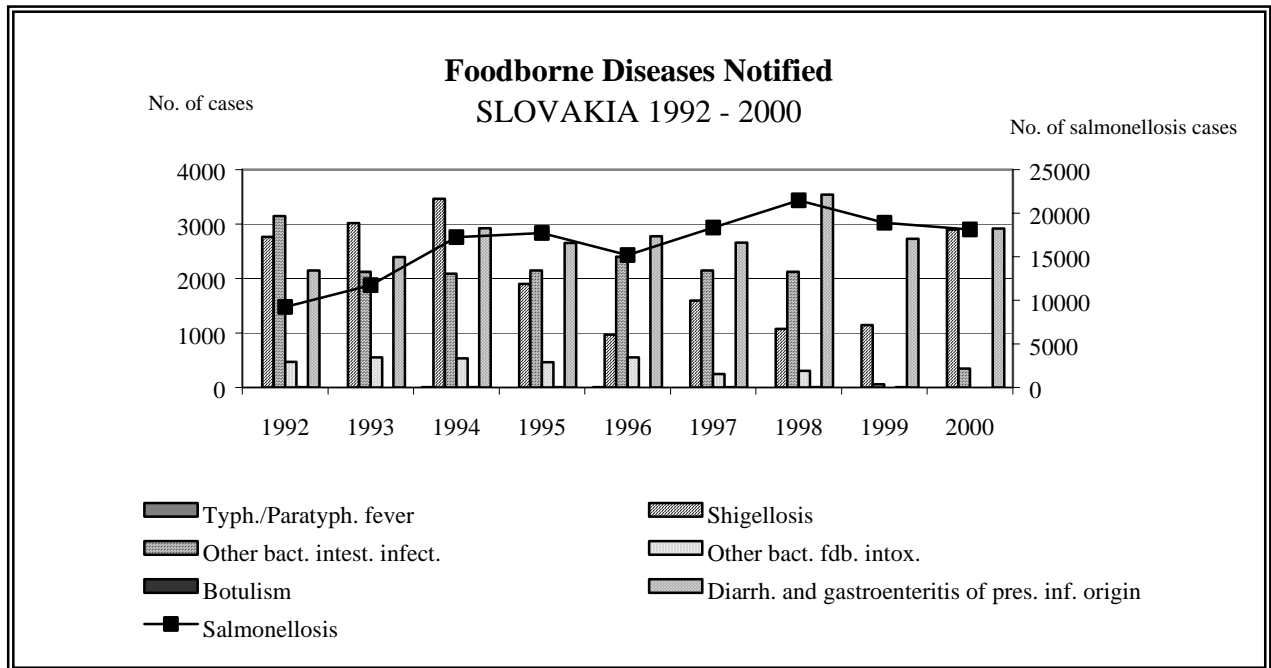
Table SK 1

Foodborne diseases notified

SLOVAKIA 1999-2000

Disease	1999		2000	
	No. of cases	Incidence rate	No. of cases	Incidence rate
Salmonellosis	18915	351.1	18143	336.3
Staphylococcosis	31	0.6	108	2.0
Botulism	4	0.1	0	0.0
Campylobacteriosis	1177	21.8	1340	24.8
Shigellosis	1150	21.3	2900	53.8
<i>E. coli</i> enteritis	489	9.1	541	10.0
Listeriosis	3	0.1	6	0.1
Cholera	0	0.0	0	0.0
Brucellosis	2	0.0	0	0.0
Other bacterial foodborne infections & intoxications	186	3.5	454	8.4
Hepatitis A	921	17.1	1080	20.0
Other viral enteritis	53	1.0	233	4.3
Echinococcosis	4	0.1	4	0.1
Trichinellosis	5	0.1	3	0.1
Giardiasis	167	3.1	165	3.1
Amoebiasis	1	0.0	0	0.0
Infectious enteritis of unknown origin	2728	50.6	2918	54.0
Other	0	0.0	1	0.0
Total	25709	476.5	27788	514.3

Figure SK 2



2.1 *Salmonella* serotypes

The serotype was identified in 17760 and 17193 cases in 1999 and 2000, representing 94% and 95% of all salmonellosis cases notified in those years respectively. The most frequently identified serotype was *S. Enteritidis*, comprising 97% and 98% of the serotyped isolates in 1999 and 2000, followed by *S. Typhimurium*, present in 2,1% and 1,4% of the isolates serotyped in the years mentioned (Table SK 2). An overview of some of the serotypes isolated between 1992 and 2000 is shown in Figure SK 3.

Figure SK3

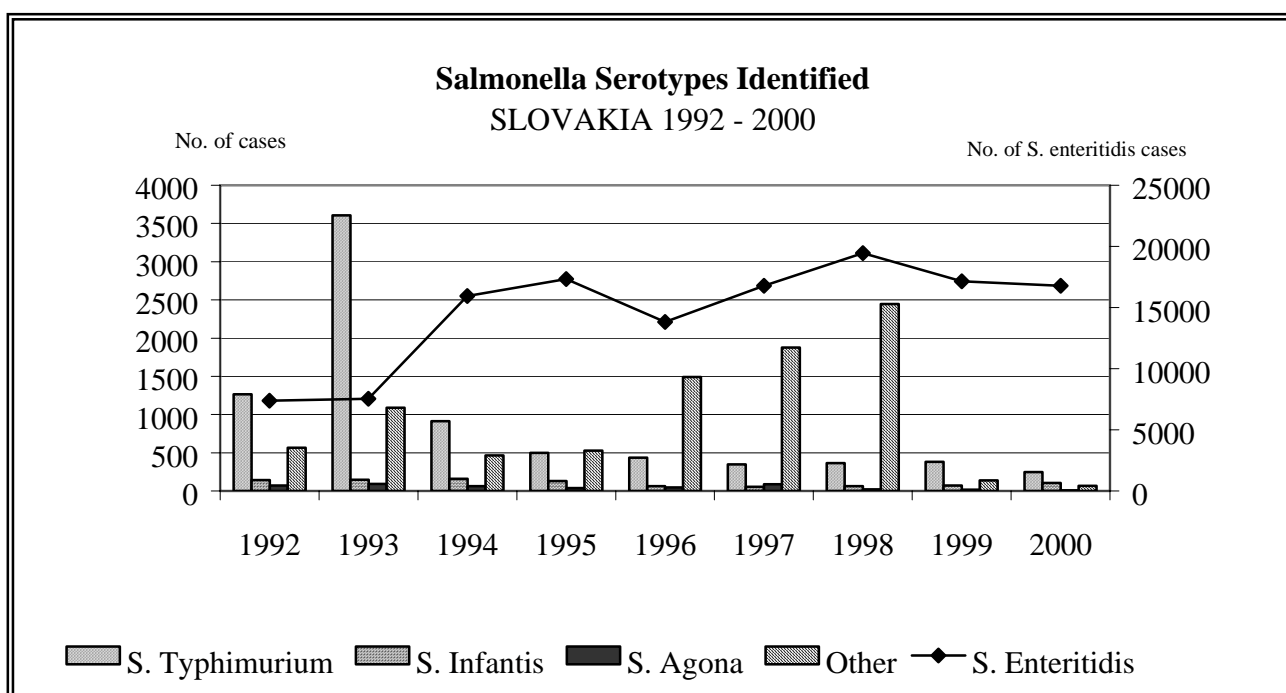


Table SK 2

Salmonella serotypes identified

SLOVAKIA 1999-2000

Serotype	1999	2000
	No. of cases	No. of cases
<i>S. Enteritidis</i>	17154	16771
<i>S. Typhimurium</i>	381	249
<i>S. Infantis</i>	70	105
<i>S. Agona</i>	15	3
<i>S. Bredeney</i>	1	1
<i>S. Derby</i>	16	5
<i>S. Virchow</i>	32	10

<i>S. Hadar</i>	21	4
<i>S. Tennessee</i>	4	2
<i>S. Panama</i>	0	2
<i>S. Saintpaul</i>	17	15
<i>S. Montevideo</i>	6	8
<i>S. Newport</i>	11	5
<i>S. Anatum</i>	3	0
<i>S. London</i>	4	3
<i>S. Ohio</i>	0	1
<i>S. Muenchen</i>	0	4
<i>S. Arizona</i>	3	3
<i>S. Bareilly</i>	15	2
<i>S. Oranienburg</i>	7	0
Total	17760	17193

3. Epidemiologically investigated incidents

A total of 92 outbreaks of foodborne diseases with 2561 cases were investigated in 1999. In the year 2000, 50 outbreaks involving 1684 cases were reported. The infectious agent was transmitted exclusively by food vehicles in 100% of the outbreaks investigated in 1999, while in 2000, the infectious agent was transmitted from animal to person in two of the outbreaks.

3.1 Causative agents

The causative agent was identified in all outbreaks of foodborne diseases investigated in 1999 and 2000. In all instances, the agent was identified by laboratory analysis. The most frequently identified causative agent was *S. Enteritidis*, identified in 98% of the outbreaks investigated in 1999 and 2000. *S. Typhimurium* accounted for 2% of the outbreaks in 1999 and 2000 (Table SK 3). An overview of the causative agents identified in foodborne disease outbreaks investigated between 1992 and 2000 is given in Figure SK 4.

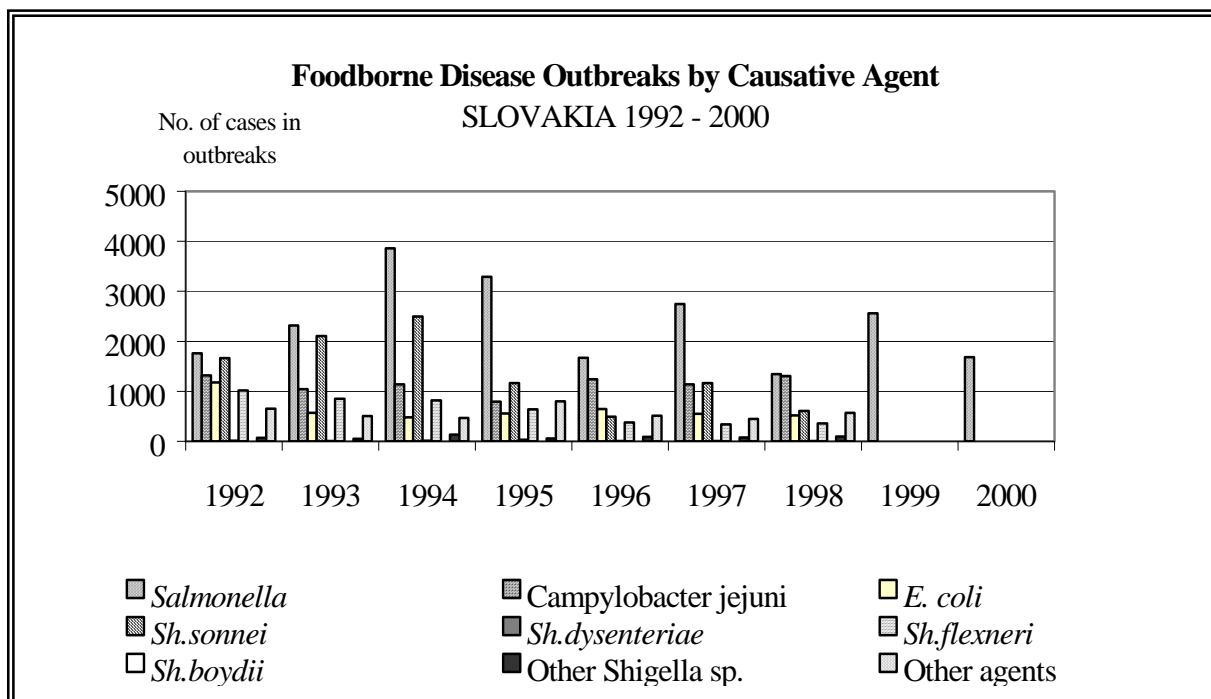
Table SK 3

Foodborne disease outbreaks investigated by causative agent

SLOVAKIA 1999-2000

Causative Agent	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
<i>S. Enteritidis</i>	90	2525	49	1650
<i>S. Typhimurium</i>	2	36	1	34
Total	92	2561	50	1684

Figure SK 4



*1993-1998: only *Salmonella* outbreak investigation results

3.2 Incriminated food

The food responsible for foodborne disease outbreaks was identified in 83% and 60% of the outbreaks investigated in 1999 and 2000 respectively. Identification of the food vehicle was achieved by laboratory analysis in 30% of the outbreaks investigated in 1999 and 2000. In 50% and 40% of the outbreaks registered in 1999 and 2000, the food responsible for foodborne disease outbreaks was identified based on epidemiological findings. The most frequently identified food vehicle was sweets, accounting for 36% and 22% of the foodborne disease outbreaks investigated in 1999 and 2000. Mayonnaise and dressings were incriminated in 23% and 24% of the outbreaks in 1999 and 2000 (Table SK 4). Figure SK 5 gives an overview of the food vehicles identified in foodborne disease outbreaks investigated in 1999 and 2000.

WHO Surveillance Programme for Control of Foodborne Infections and Intoxications in Europe
8th Report 1999-2000

Country Reports: *SLOVAKIA*

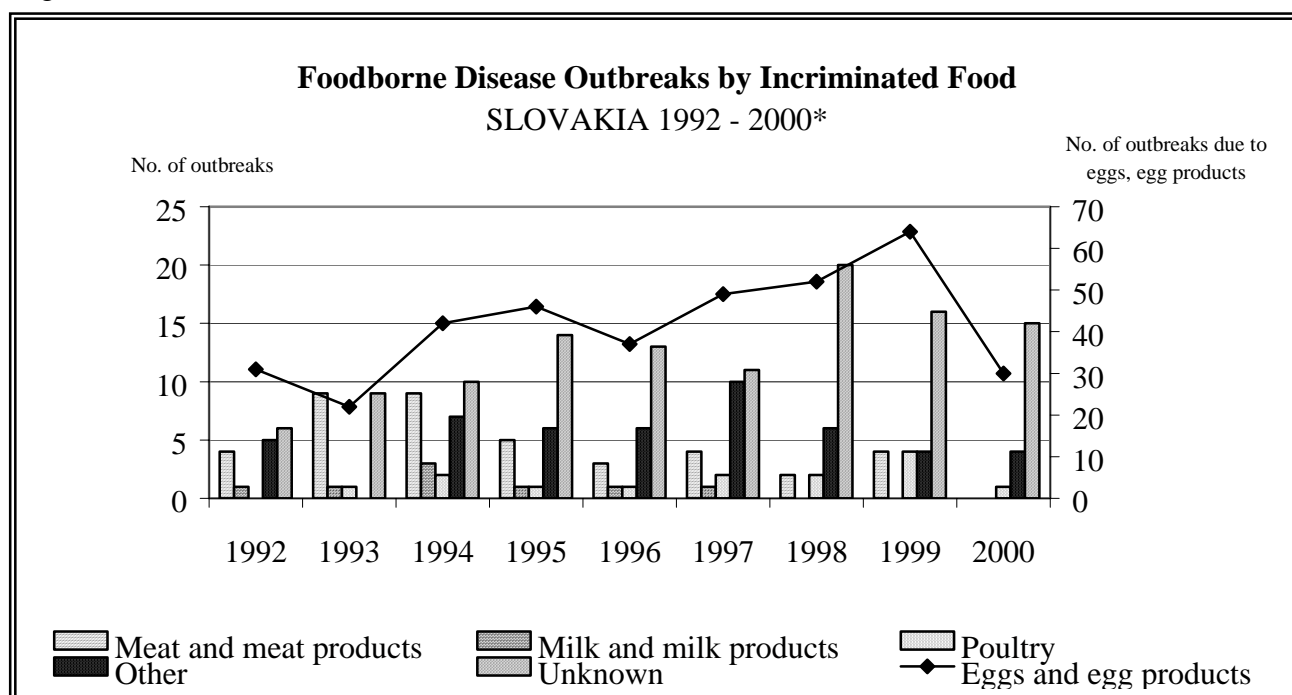
Table SK 4

Foodborne disease outbreaks investigated by incriminated food

SLOVAKIA 1999-2000

Incriminated Food	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Meat	1	32	0	0
Beef	1	28	0	0
Chicken	4	104	1	114
Meat products	2	46	0	0
Eggs, egg products	9	312	5	190
Mayonnaise, dressings	21	608	12	412
Mayonnaise, dressings, sweets	0	0	2	48
Puddings, creams	1	16	0	0
Sweets	33	813	11	299
Pasta	1	41	0	0
Fish products	0	0	1	84
Fish products, sweets	0	0	1	31
Ready-to-serve-meals	0	0	2	191
Other	3	76	0	0
Unknown	16	485	15	315
Total	92	2561	50	1684

Figure SK 5



3.3 Place of contamination and acquisition/consumption of food

The place of contamination of the incriminated food was identified in 100% and 84% of the outbreaks investigated in 1999 and 2000 respectively. The private home was reported in 35% and 24% of the outbreaks in 1999 and 2000, whereas schools and kindergartens were noted in 15% and 16% of the outbreaks for the years mentioned (Table SK 5).

Table SK 5

Foodborne disease outbreaks by place of contamination

SLOVAKIA 1999-2000

Place of Contamination	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Restaurant/hotel	10	337	3	48
Canteen	9	300	8	507
School/kindergarten	14	381	8	300
Medical care facility	2	89	0	0
Caterer	4	154	9	452
Private home	32	635	12	201
Camping	2	72	2	36
Food processing est.	1	11	0	0
Other	18	582	0	0
Unknown	0	0	8	140
Total	92	2561	50	1684

Table SK 6

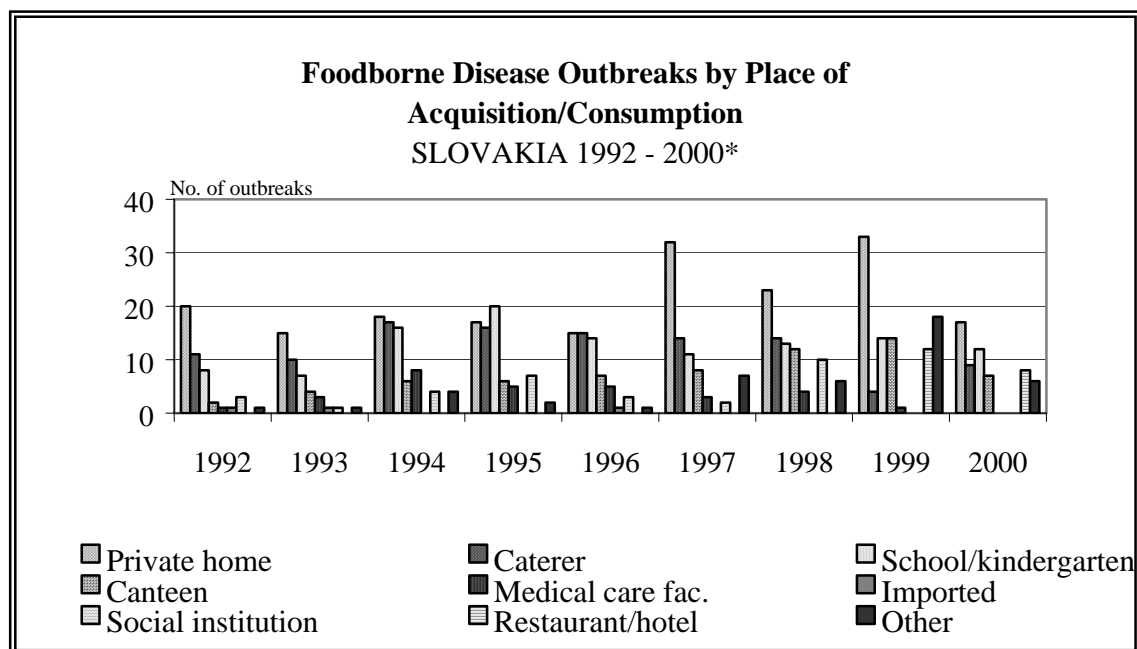
Foodborne disease outbreaks by place of acquisition/consumption

SLOVAKIA 1999-2000

Place of acquisition/consumption	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Restaurant/hotel	12	393	8	233
Canteen	14	598	7	416
School/kindergarten	14	371	12	353
Medical care facility	1	52	0	0
Private home	33	701	17	539
Camping	3	86	3	61
Other	15	360	3	82
Total	92	2561	50	1684

The place of acquisition and/or consumption was reported for all outbreaks investigated in 1999 and 2000. The most frequently identified place of acquisition and/or consumption of food was the private home, mentioned in 36% and 34% of the outbreaks in 1999 and 2000 respectively. An overview of the places of acquisition and/or consumption of the incriminated food in foodborne disease outbreaks investigated between 1992 and 2000 is given in Figure SK 6.

Figure SK 6

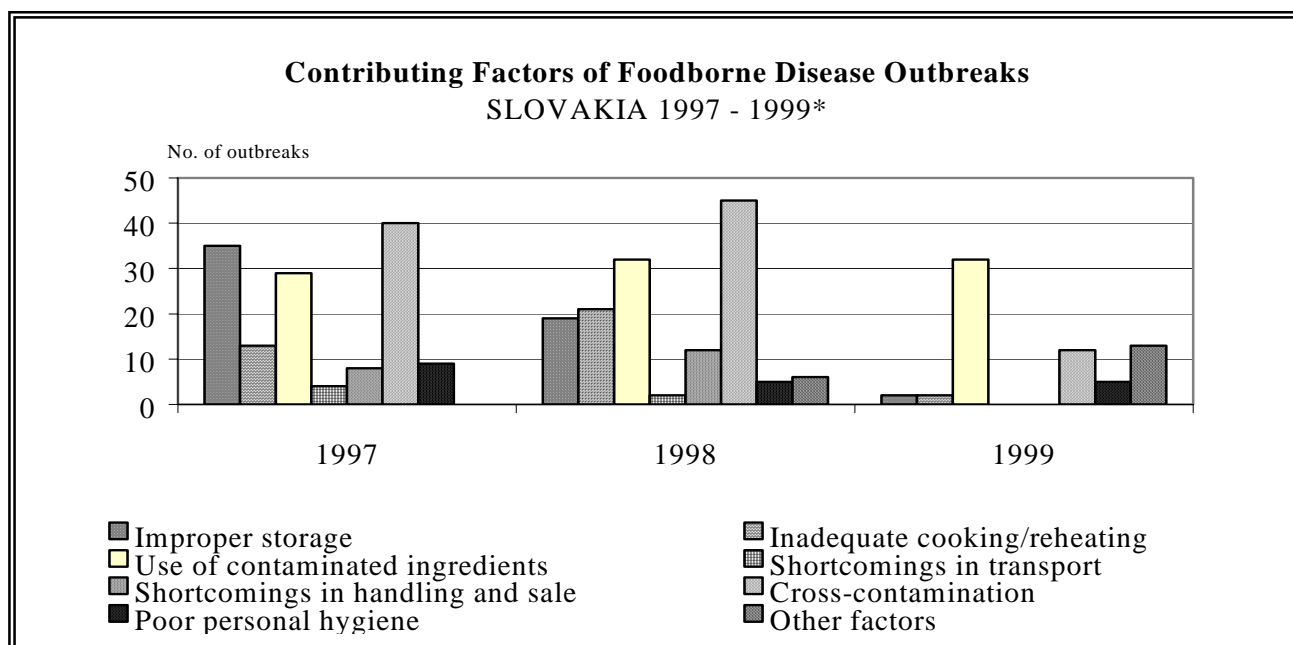


*1993-1998: only *Salmonella* outbreak investigation results

3.4 Contributing factors

The factors contributing to foodborne disease outbreaks were identified in 72% of the outbreaks investigated in 1999. No information on contributing factors was available for 2000. The most frequently noted factor was the use of contaminated ingredients, mentioned in 35% of the outbreaks investigated in 1999.

Figure SK 7



*1997-1998: only *Salmonella* outbreak investigation results

Other important factors included preparation of food too far in advance and inadequate disinfection (Table SK 7). An overview of the most important contributing factors identified in foodborne disease outbreak investigations between 1997 and 1999 is shown in Figure SK 7.

Table SK 7

Contributing factors of foodborne disease outbreaks

SLOVAKIA 1999

Contributing factors	1999	
	No. of outbreaks	No. of cases in outbreaks
<i>Most important contributing factor</i>		
Use of contaminated ingredients	32	890
Food prepared in advance	13	238
Inadequate disinfection	12	507
Contamination by infected person	5	120
Inadequate cooking	2	71
Improper storage	2	77
Unknown	26	658
Total	92	2561
<i>Other contributing factors</i>		
Food prepared in advance	16	428
Use of contaminated ingredients	7	343
Inadequate cooking	16	480
Improper storage	4	103
Inadequate disinfection	3	48
Unknown	46	1159
Total	92	2561

4. Additional information

For further reference on national and international data on foodborne diseases, please visit the web page http://www.euro.who.int/foodsafety/Surveillance/20020904_1