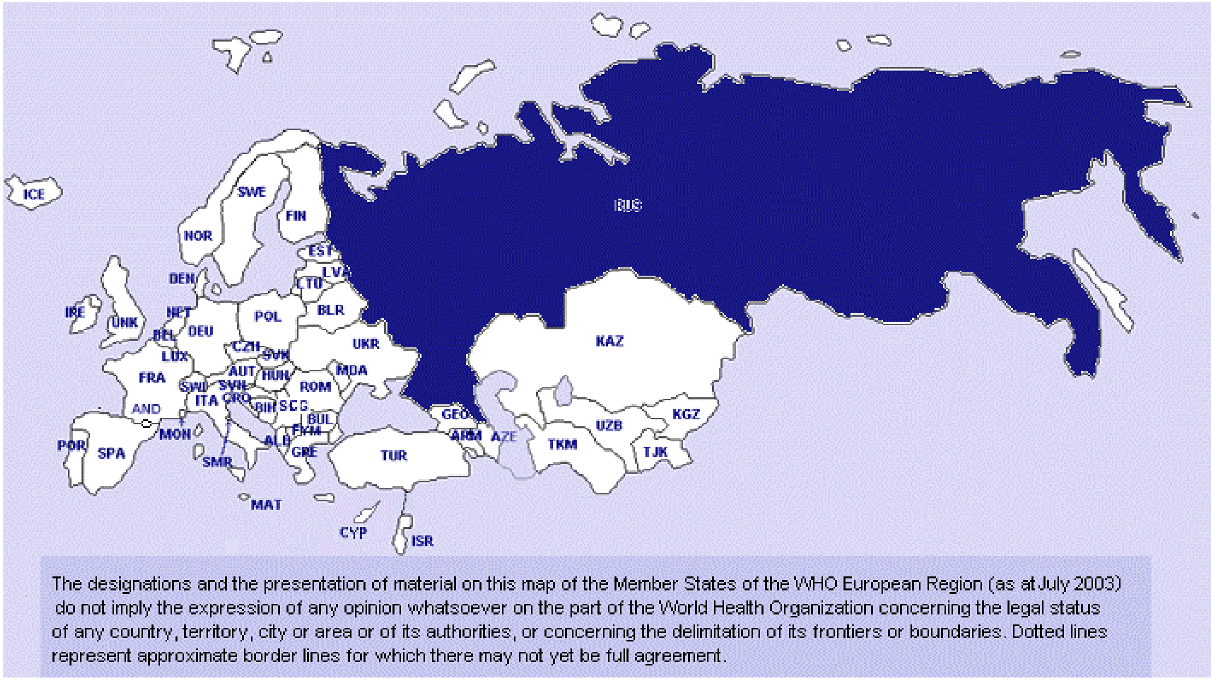
RUSSIAN FEDERATION

Population 1999: 146 700 000
Population 2000: 145 600 000
Area: 17 million km^2



1. General information

In the Russian Federation (country abbreviation: RU), individual cases of foodborne infections and intoxications are not subject to special notification. These cases are included in the monthly and annual reports within the category of intestinal infections whether or not they are caused by bacterial or viral agents (e.g. *Salmonella spp*., *Shigella spp*., *Staph. aureus*, *E. coli*, Enterobacter spp., Bac. cereus, Proteus, V. parahaemolyticus, Enteroviruses, Rotaviruses, etc.).

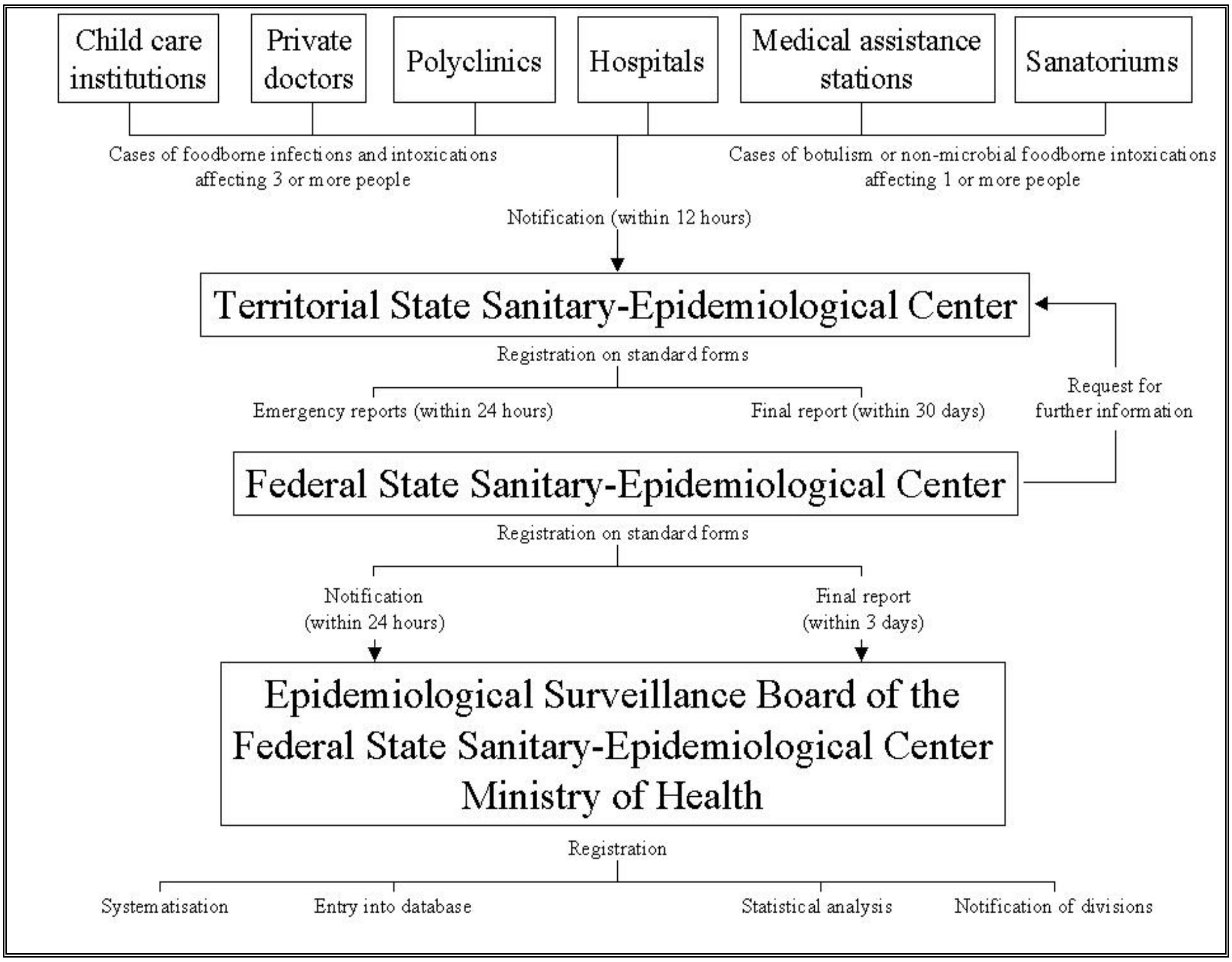
Outbreaks of foodborne bacterial and viral infections and intoxications affecting three or more persons are subject to special registration in the Russian Federation. There is also compulsory registration of all cases of food poisoning caused by *Clostridium botulinum* and its toxins, as well as by chemical substances, and of all cases with a fatal outcome.

Computers are used in the State Epidemiological Surveillance Centres to register data about collective and individual cases of foodborne diseases. Reports compiled on standard forms concerning outbreaks of foodborne infections and intoxications are submitted to the relevant departments of the Ministry of Health of the Russian Federation by telephone, teletype, fax, post or electronic mail.

Figure RU 1

Foodborne disease surveillance system

RUSSIAN FEDERATION 1999-2000



2. Statutory notification

A total of 9796 and 10696 cases of foodborne diseases were notified in 1999 and 2000 respectively. These numbers represent a marked reduction in comparison with the number of cases notified in previous years (Figure RU 2). The most frequently notified foodborne disease was shigellosis, which accounted for 68% and 78% of the foodborne disease cases notified in 1999 and 2000. Twelve and 8% of the cases notified in 1999 and 2000 were due to salmonellosis (Table RU 1).

Table RU 1

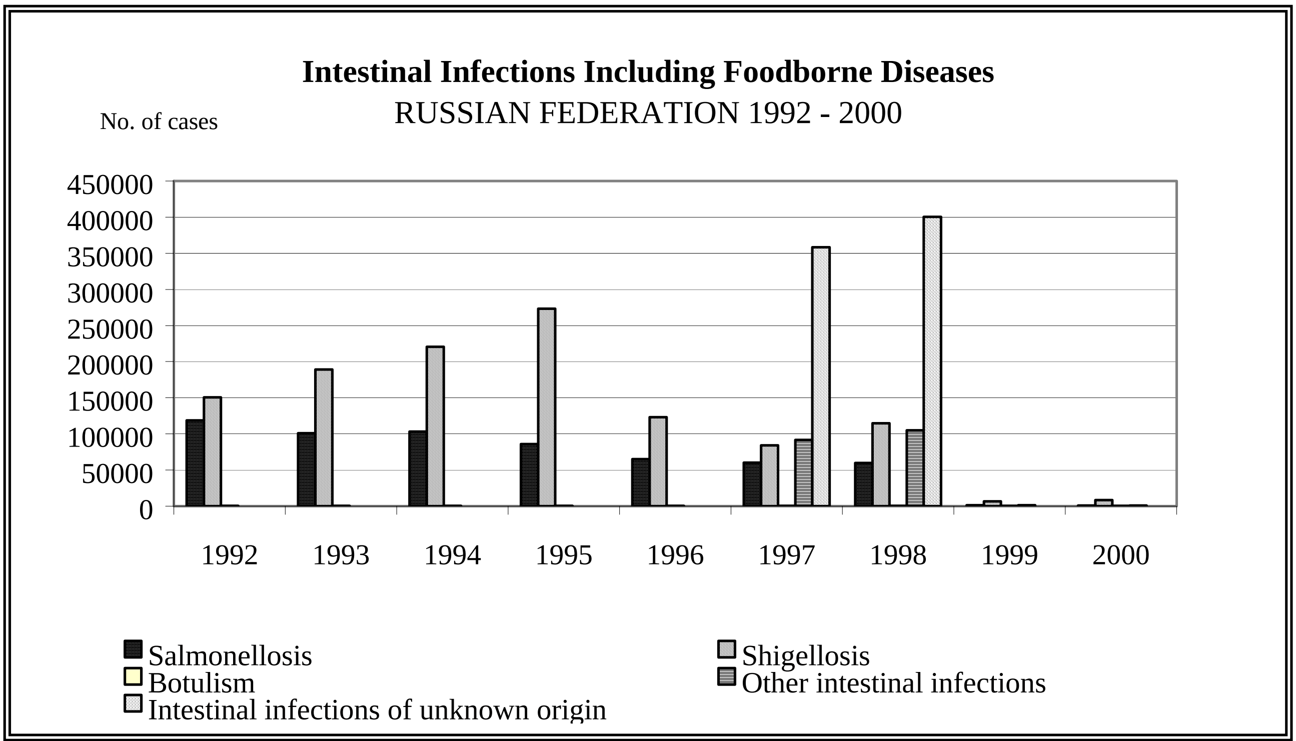
Foodborne diseases notified

RUSSIAN FEDERATION 1999-2000

Disease	1999		2000	
	No. of cases	Incidence rate	No. of cases	Incidence rate
Salmonellosis	1172	0.80	846	0.58
Staphylococcosis	244	0.17	134	0.09
Botulism	478	0.33	409	0.28
Campylobacteriosis*	469	0.32	327	0.22
Shigellosis	6686	4.56	8287	5.69
E.coli enteritis	15	0.01	0	0.00
Listeriosis*	74	0.05	54	0.04
Cholera	20	0.01	1	0.00
Brucellosis*	434	0.30	358	0.25
Bac.cereus	52	0.04	0	0.00
Foodborne intoxications of mixed aetiology**	0	0.00	77	0.05
Hepatitis A	No data		No data	
Rotavirus enteritis	0	0.00	31	0.02
Echinococcosis	No data		No data	
Trichinellosis	No data		No data	
Giardiasis	No data		No data	
Amoebiasis	No data		No data	
Foodborne intoxications of unknown origin	152	0.10	172	0.12
Total	9796	6.68	10696	7.35

*All recorded cases, including foodborne cases
** Klebsiella + Citrobacter; Str. faecium + Citrobacter

Figure RU 2



* 1999 - 2000 only cases on foodborne disease outbreaks

2.1 *Salmonella* serotypes

The serotype was established in 90% and 80% of the salmonellosis cases notified in 1999 and 2000 respectively. The most frequently identified serotype was *S*. Enterititidis, comprising 77% and 79% of the salmonellosis cases notified in 1999 and 2000 (Table RU 2). *S*. Typhimurium accounted for 13% of the salmonellosis cases in 1999, while *S*. Java was responsible for 10% of the salmonellosis cases notified in 2000.

Table RU 2

Salmonella serotypes identified

RUSSIAN FEDERATION 1999-2000

Serotype	1999 No. of cases	2000 No. of cases
S. Enteritidis	900	588
S. Typhimurium	157	0
S. Java	0	92
Not established	115	166
Total	1172	846

3. Epidemiologically investigated incidents

In 1999, 15 outbreaks of foodborne diseases involving 987 cases were investigated; in 2000, 22 outbreaks involving 1004 cases were examined. The mean duration of the outbreaks was six days in 1999 and four days in 2000. No deaths were recorded in either 1999 or 2000. Nausea and vomiting were the most frequently observed clinical symptoms. Neurological and cardiovascular symptoms were noted in outbreaks due to *Staph. aureus* and outbreaks involving two and more bacteria (Table RU 3).

Table RU 3

Morbidity, mortality and clinical symptoms of foodborne disease outbreaks

RUSSIAN FEDERATION 1999-2000

Morbidity, mortality and clinical symptoms	1999	2000
No. of outbreaks	15	22
Mean duration of outbreaks (d)	5.9 (range 2-21)	3.5 (range 1-6)
Morbidity		
No. of persons at risk	650	1145
No. of persons at risk 0-4 years		364
No. of persons at risk 4-15 years	650	743
No. of persons at risk15-60 years		38
No. of persons at risk >60 years		
No. of persons ill	987	1004
No. of persons ill 0-4 years	34	169
No. of persons ill 4-15 years	573	553
No. of persons ill 15-60 years	380	281
No. of persons ill >60 years		1
Mortality		
No. of persons dead	0	0
Clinical symptoms		
No. of persons with nausea	349	540
No. of persons vomiting	400	305
No. of persons with diarrhoea	265	223
No. of persons with abdominal pain	199	71
No. of persons with fever	164	100
No. of persons with neurological symptoms	120	17
No. of persons with cardiovascular symptoms	0	5
No. of persons with other symptoms	23	0

Table RU 4

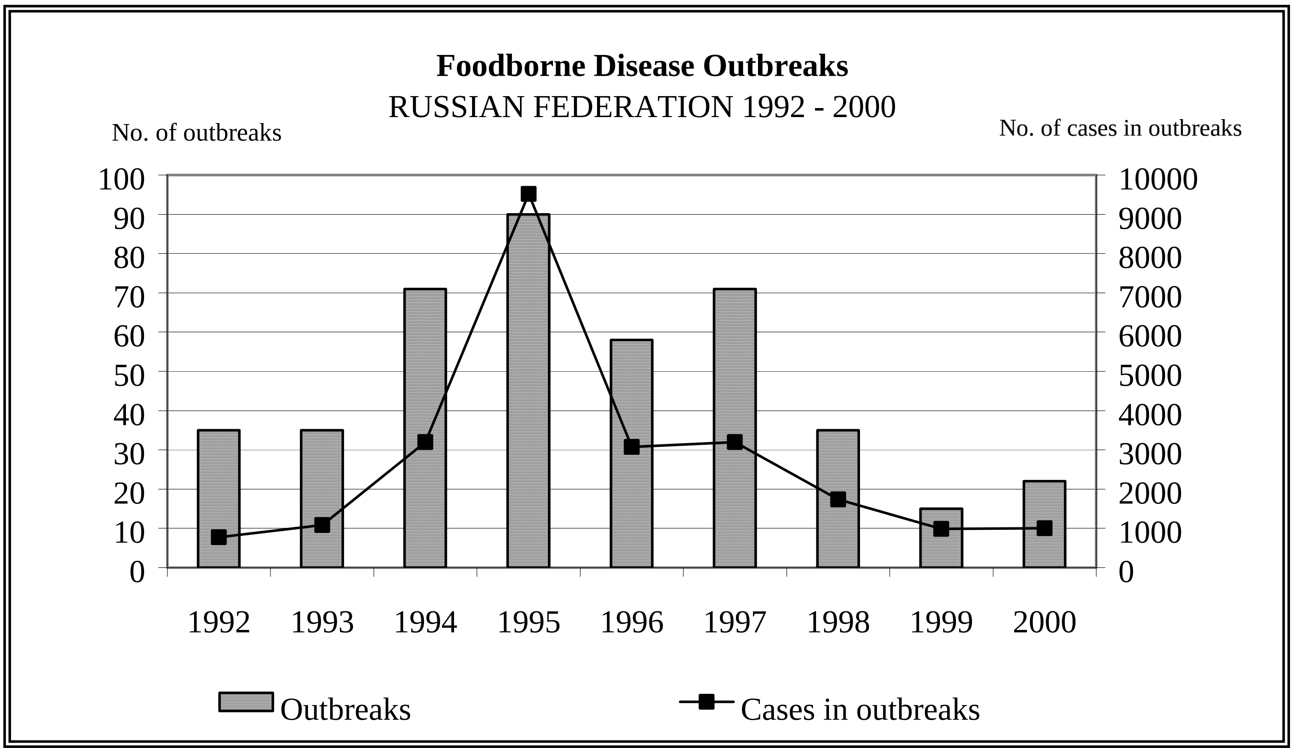
Laboratory investigations of foodborne disease outbreaks

RUSSIAN FEDERATION 1999-2000

	1999	2000
No. of sick persons tested	275	644
No. of sick persons positive	214	329
No. of healthy persons tested	0	231
No. of healthy persons positive	0	0
No. of food handlers tested	8	185
No. of food handlers positive	2	36
No. of suspected food tested	59	70
No. of suspected food positive	14	18
No. of other food tested	28	97
No. of other food positive	4	12
No. of environment tests done	no data	no data
No. of environment tests positive	no data	no data

Table RU 4 shows the outcome of laboratory examinations carried out during investigations of foodborne disease outbreaks in 1999 and 2000. An overview of the number of foodborne disease outbreaks investigated between 1992 and 2000 is given in Figure RU 3.

Figure RU 3



3.1 Causative agents

The causative agent was identified in all outbreaks of foodborne diseases investigated in 1999 and 2000. The causative agent was confirmed by laboratory diagnosis in 88% and 64% of the outbreaks investigated in 1999 and 2000 respectively.

Table RU 5

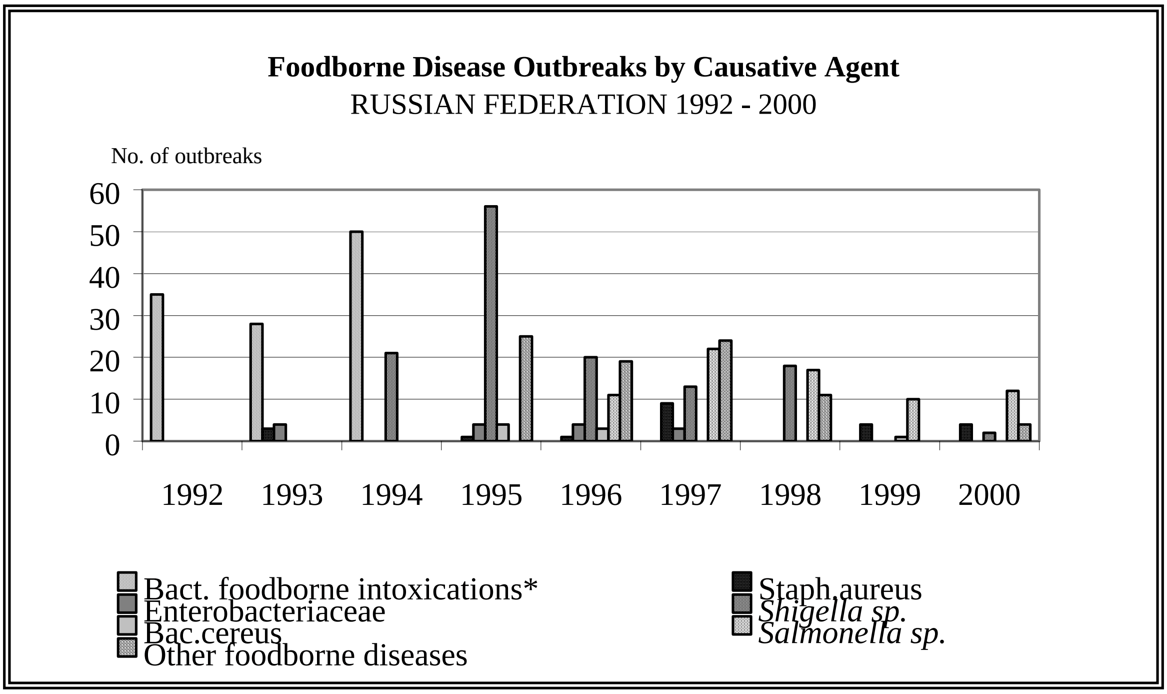
Foodborne disease outbreaks investigated by causative agent

RUSSIAN FEDERATION 1999-2000

Causative agent	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Bac. cereus	1	53	0	0
S. Enteritidis	8	592	11	453
S. Typhimurium	2	157	0	0
S. Java	0	0	1	92
Sh. flexneri	1	52	1	125
Sh. sonnei	0	0	1	27
Staph. aureus	4	185	4	109
2 and more bacteria	0	0	3	167
Rotavirus	0	0	1	31
Total	16	1039	22	1004

Figure RU 4

*intoxications caused by *Staph. aureus* enterotoxin and *Cl. botulinum* toxins



The most frequently identified causative agent was *S*. Enteritidis, accounting for 50% of the outbreaks in both 1999 and 2000, as well as 57% and 45% of the cases reported in 1999 and 2000 respectively. *Staph. aureus* accounted for 25% and 18% of the outbreaks investigated in those years (Table RU 5). Figure RU 4 gives an overview of the causative agents identified in foodborne disease outbreaks investigated between 1992 and 2000.

3.2 Incriminated food

The food responsible for foodborne disease outbreaks investigated in 1999 and 2000 was identified in all outbreaks in 1999 and in 91% of those outbreaks investigated in 2000. In 27% and 32% of the investigated outbreaks in 1999 and 2000, the food was identified by laboratory analysis. Eggs and egg products were the most common food vehicle in 1999, accounting for 28% of cases. In 2000, the most frequently incriminated foods were milk products, accounting for 26% of the cases in outbreaks (Table RU 6). The most frequently isolated causative agent in eggs and egg products were *S*. Enteritidis and *Staph. aureus*, while in milk products, *Staph. aureus*, rotavirus and two and more bacteria were found. The way in which the incriminated food had been marketed was established in 67% and 64% of the outbreaks investigated in 1999 and 2000 respectively. In 40% of the outbreaks in both years, the food was marketed non-packaged. The most frequent method of treatment before final preparation of the implicated food vehicle was sterilisation (20% and 41% of the outbreaks in 1999 and 2000) (Table RU 7). In 33% and 32% of the outbreaks investigated in 1999 and 2000, the incriminated food was consumed without any further preparation (Table RU 8).

Table RU 6 **Foodborne disease outbreaks investigated by incriminated food**
RUSSIAN FEDERATION 1999-2000

Incriminated food	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Milk	1	107	0	0
Milk products	0	0	6	260
Eggs, egg products	2	271	1	63
Meat	0	0	1	32
Pork	1	50	0	0
Chicken	2	114	1	31
Meat products	2	123	1	19
Fish products	0	0	1	92
Bread, biscuits	0	0	1	18
Fancy cakes	2	137	2	82
Meat salads	1	69	2	49
Fish salads	0	0	1	34
Potato salad	2	80	1	99
Dietetic foods	1	16	0	0
Ready-to-serve-meals	1	20	2	73
Unknown	0	0	2	152
Total	15	987	22	1004

Table RU 7

Methods of marketing and processing of food incriminated in foodborne disease outbreaks
RUSSIAN FEDERATION 1999-2000

Methods of marketing and processing	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Marketing of food				
Non-packaged	6	372	9	432
Packaged	4	302	5	215
Unknown	5	313	8	357
Total	15	987	22	1004
Treatment before final preparation				
Sterilised	3	154	9	347
Cooked	0	0	2	164
Pasteurised	2	192	3	68
Concentrated	3	284	0	0
Unknown	7	357	8	425
Total	15	987	22	1004

Table RU 8

Methods of serving of food incriminated in foodborne disease outbreaks
RUSSIAN FEDERATION 1999-2000

Method of serving	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Raw	5	276	7	284
Heated	0	0	1	99
Kept warm	4	274	4	126
Reheated	3	284	0	0
Unknown	3	153	10	495
Total	15	987	22	1004

3.3 Place of contamination

The place where the incriminated food was contaminated was identified in all outbreaks investigated in 1999 and 2000. The most frequently reported places were schools and kindergartens, accounting for 33% and 50% of outbreaks in 1999 and 2000 (Table RU 9).

Table RU 9

Foodborne disease outbreaks investigated by place of contamination of food

RUSSIAN FEDERATION 1999-2000

Place of contamination	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Farm	2	256	1	32
Restaurant/hotel	2	115	0	0
Canteen	1	91	1	35
School/kindergarten	5	244	11	533
Medical care facility	1	53	6	342
Mass catering for specific groups	1	69	0	0
Ship	1	71	0	0
Private home	0	0	1	18
Food processing establishment	2	88	2	44
Total	15	987	22	1004

3.4 Place of acquisition and/or consumption

The place of acquisition of the incriminated food was identified in all outbreaks investigated in 1999 and 2000. The most frequently noted places were schools and kindergartens, accounting for 33% and 46% of the outbreaks in 1999 and 2000 (Table RU 10). Schools and kindergartens were also the most frequently reported places of consumption, the site of 33% and 50% of the outbreaks investigated in 1999 and 2000 (Table RU 11).

Table RU 10

Foodborne disease outbreaks investigated by place of acquisition of food
RUSSIAN FEDERATION 1999-2000

Place of acquisition	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Restaurant/hotel	2	115	0	0
Canteen	1	91	1	35
Retail store	3	237	4	205
Ambulant service	1	107	0	0
School/kindergarten	5	244	10	468
Medical care facility	1	53	5	213
Mass catering for specific groups	1	69	0	0
Ship	1	71	0	0
Private home	0	0	1	18
Food processing establishment	0	0	1	65
Total	15	987	22	1004

Table RU 11

Foodborne disease outbreaks investigated by place of consumption of food
RUSSIAN FEDERATION 1999-2000

Place of consumption	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Restaurant/hotel	1	50	0	0
Canteen	1	91	1	35
School/kindergarten	5	244	11	486
Medical care facility	1	53	5	247
Mass catering for specific groups	1	69	0	0
Ship	1	71	0	0
Private home	5	409	5	236
Total	15	987	22	1004

3.5 Contributing factors

Factors contributing to foodborne disease outbreaks were identified in all outbreaks investigated in 1999 and in 86% of the outbreaks investigated in 2000. The most common factors were contamination of food by an infected person and inadequate hot holding of food. Other frequently reported factors were inadequate cooling of food after heating and improper storage of food (Table RU 12).

Table RU 12

Foodborne disease outbreaks investigated by contributing factors
RUSSIAN FEDERATION 1999-2000

Contributing factors	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Most important contributing factor				
Inadequate hot holding	5	393	1	19
Preparation of food in advance	1	53	0	0
Inadequate cooling after heating	3	166	1	12
Food obtained from unsafe source	0	0	3	113
Use of contaminated ingredients	2	137	1	31
Contamination by infected person	4	238	5	368
Contamination by infective equipment	0	0	2	159
Improper storage	0	0	4	127
Other factors	0	0	2	80
Unknown	0	0	3	95
Total	15	987	22	1004

Table RU 12 (continued)

Other contributing factors	1999		2000	
	No. of outbreaks	No. of cases in outbreaks	No. of outbreaks	No. of cases in outbreaks
Inadequate hot holding	1	107	1	38
Preparation of food in advance	1	122	1	90
Inadequate cooling after heating	4	169	0	0
Inadequate reheating	1	71	0	0
Food obtained from unsafe source	1	50	1	65
Contamination by infected person	1	16	1	31
Contamination by infective equipment	2	104	1	12
Inadequate cooking	0	0	1	13
Improper storage	1	43	3	193
Other factors	2	214	1	11
Unknown	1	91	12	551
Total	15	987	22	1004

4. Additional Information

In addition to foodborne disease outbreaks, one outbreak of waterborne illness was registered in 1999. The outbreak was caused by *Sh. flexneri* and involved 52 cases. The vehicle was drinking water from a contaminated storage facility in a medical care facility.

Data concerning foodborne infections and intoxications in the Russian Federation for inclusion in the 8th Report of the WHO Surveillance Programme for Control of Foodborne Infections and Intoxications in Europe in 1999-2000 were prepared by the Institute of Nutrition of the Russian Academy of Medical Sciences (V. A. Tutelyan, S. A. Sheveleva, N. R. Efimochkina) and the Central Scientific Research Institute of Epidemiology (V. I. Pokrovski) on the basis of materials provided by the Ministry of Health of the Russian Federation (G. G. Onishchenko, Chief Medical Officer of the Russian Federation; S. I. Ivanov, A. I. Petukhov, T. I. Frolochkina and N. N. Ivanova of the State Epidemiological Surveillance Board; and A. A. Ivanov of the Federal Epidemiological Surveillance Centre).

The Russian Federation is a member of the network of infectious disease control institutes of nine Northern European countries (Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, Russian Federation, Sweden) and contributes to the common bulletin of this network, "EpiNorth", which provides information on infectious diseases in the Barents and the Baltic Sea regions and can be found at http://www.epinorth.org/ .

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