



HUNGARY (HUN)

Population: 10.1 millions (1998)

Area: 93 030 km²



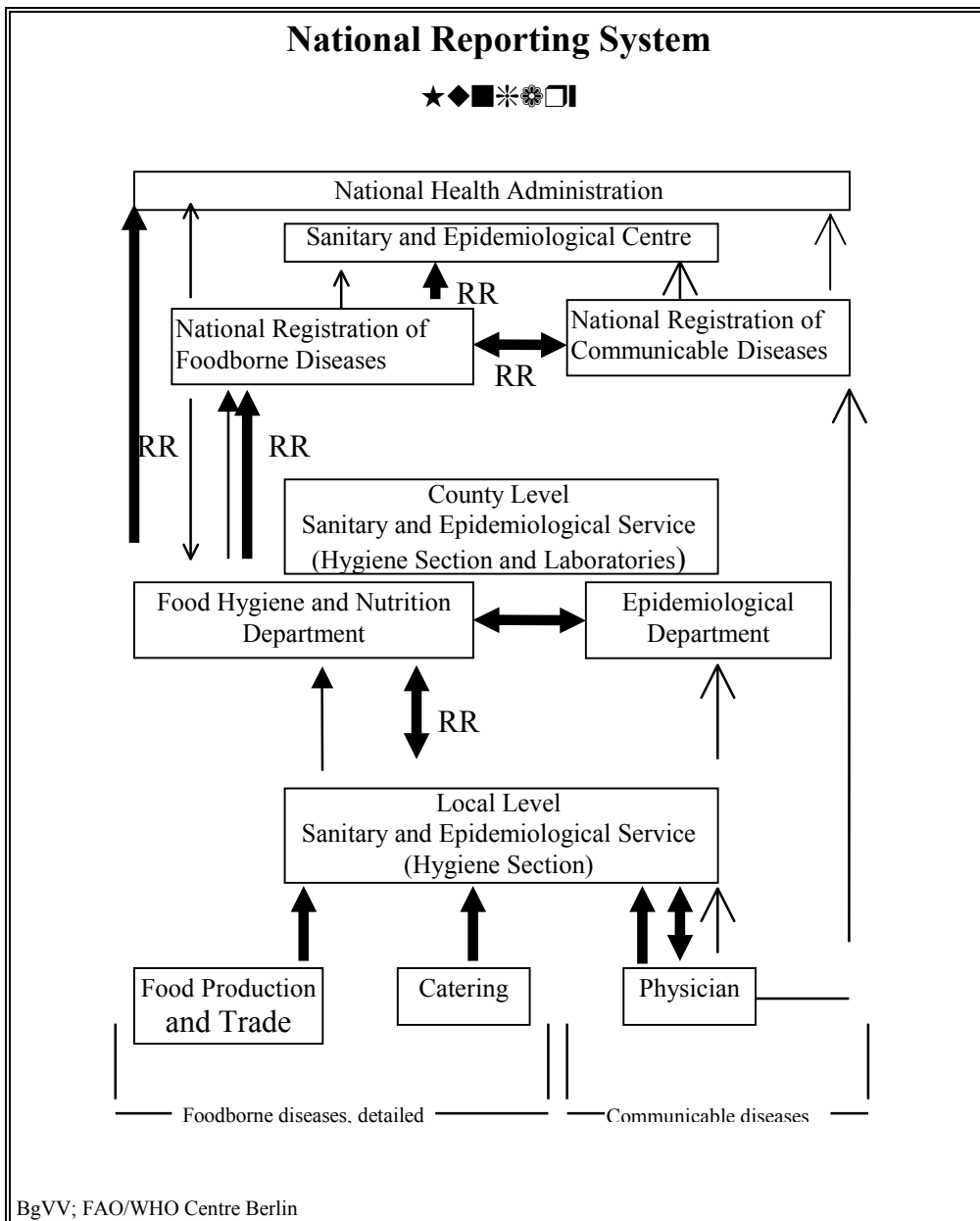
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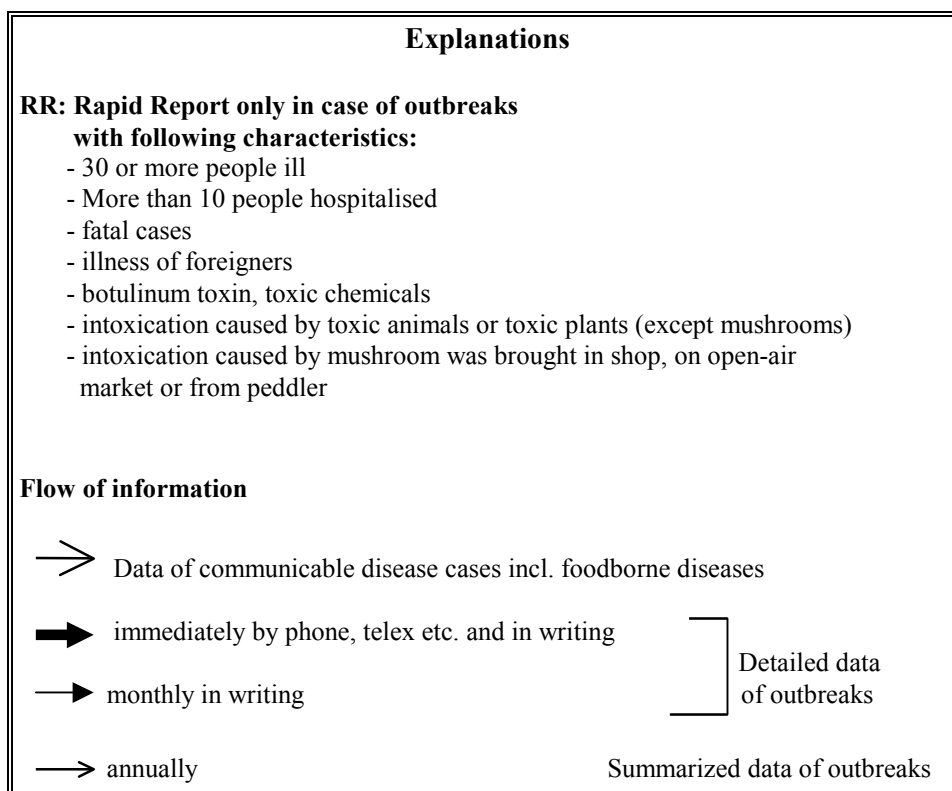
1. General information

Data on foodborne infections and intoxications are collected according to two legally controlled reporting systems.

The first one is the reporting system of foodborne infections and intoxications, under which each outbreak in which food or beverages are suspected or have been confirmed has to be reported - not considering the number of persons ill and the causative agent.

Figure HU 1





Laboratory investigations have to be made of each outbreak. Outbreaks involving two or more persons in which the laboratory investigation of the person and/or the food failed to identify the causative agent but where there is epidemiological evidence, are also considered as foodborne. The first notice is mainly given by the physician who observes the disease, but managers of food production establishments, trade and catering are as well obliged to report, if they have information about persons being ill.

Reports may also come from the Laboratory of Sanitary and Epidemiological Service at county level; the investigation of the origin of the disease is the task of the local level even in this case. Details of the reporting system can be seen from Figure HU 1.

Under the other reporting system data are reported of all cases of notifiable communicable diseases - including foodborne infections. Figure HU 1 describes the latter reporting system, and also shows the connection between the two systems.

2. Statutory notification

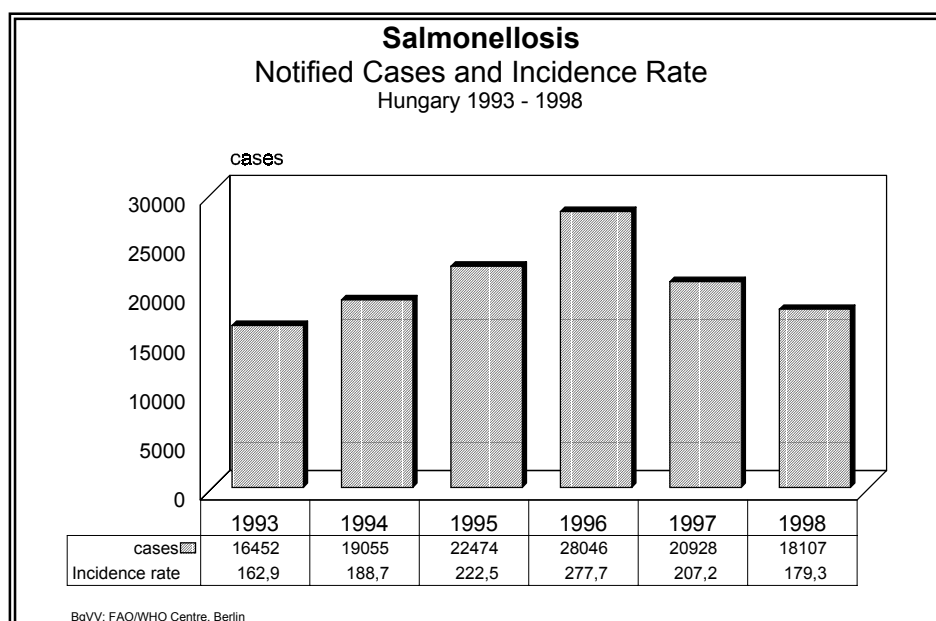
Table HU 1

Notified cases of some communicable diseases
HUNGARY 1993 - 1998

Disease	Year					
	1993	1994	1995	1996	1997	1998
Typhus abd.	2*	2*	-	2	1*	-
Paratyphus	1*	2*	-	1	-	1
Salmonellosis	16452	19055	22474	28046	20928	18107
<i>Incidence rate</i>	162.9	188.7	222.5	277.7	207.2	179.3
Shigellosis	1530	1820	1351	1267	1261	645
<i>Incidence rate</i>	15.1	18.0	13.4	12.5	12.5	6.4
Echinococcosis	7	2	5	11	1	6
<i>Incidence rate</i>	0.1	0.0	0.0	0.1	0.0	0.1
Trichinellosis	2	-	2	-	-	3
Taeniasis	8*	4	4	6*	5	7
<i>Incidence rate</i>	0.1	0.0	0.0	0.1	0.0	0.1

*imported cases included

Figure HU 2



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3. Epidemiologically investigated incidents

3.1 Causative agents

Table HU 2

Foodborne disease outbreaks by causative agents[§] 1993 -1995
HUNGARY 1993 - 1998

Causative Agents	1993			1994			1995		
	O.*	C.**	S.C.***	O.*	C.**	S.C.***	O.*	C.**	S.C.***
<u>1. Bacterial</u>									
<i>Aeromonas spp.</i>	-	-	-	-	-	-	1	31	-
<i>Bac. cereus</i>	8	427	-	1	7	-	-	-	-
<i>C. jejuni</i>	2	7	1	6	33	3	2	4	4
<i>C. laridis</i>	-	-	-	-	-	-	-	-	-
<i>C. coli</i>	-	-	-	-	-	-	-	-	-
<i>Cl. botulinum</i>	3	8	5	3	8	11	2	6	10
<i>Cl. perfringens</i>	2	44	-	1	26	-	2	72	-
<i>Klebsiella</i>	-	-	1	-	-	-	-	-	-
<i>Pseudomonas</i>	1	174	-	-	-	-	-	-	-
<i>Salmonella</i> ¹	158	3097	10	213	3311	44	266	3546	128
<i>Staph. aureus</i>	12	151	1	8	235	2	8	397	1
<i>Enterococcus faecalis</i>	3	145	1	4	27	-	2	40	-
<i>E.coli</i> (EPEC)	-	-	-	-	-	-	-	-	-
Total	189	4053	19	236	3647	60	283	4096	143
<u>2. Other agents</u>									
Toxic mushrooms	39	130	37	54	181	36	123	414	66
Toxic plants	-	-	1	-	-	2	1	2	1
Toxic animals	-	-	-	-	-	-	-	-	-
Toxic chemicals	1	6	2	28	97	27	3	12	3
Total	40	136	40	82	278	65	127	428	70
<u>3. Unknown</u> ²									
Not identified	36	1484	19	22	254	19	17	145	7
Not investigated	5	25	3	11	45	9	6	88	6
Total	41	1509	22	33	299	28	23	233	13
OVERALL TOTAL	270	5698	81	351	4224	153	433	4757	226

* Outbreaks ** Cases in outbreaks *** Single cases

§ Based on the identification of the agent in the food and/or the patient

¹ other than *S. Typhi* and *S. Paratyphi*

² considered as foodborne on epidemiological grounds

Table continued for 1996 - 1998

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Table HU 2 (continued)

Causative Agents	1996 -1998											
	1996			1997			1998			1993-1998		
	O.*	C.**	S.C.***	O.*	C.**	S.C.***	O.*	C.**	S.C.***	O.*	C.**	S.C.***
<i>1. Bacterial</i>												
<i>Aeromonas spp.</i>	1	20	-	1	9	-	-	-	-	3	60	0
<i>Bac. cereus</i>	1	16	-	4	218	-	5	177	-	19	845	0
<i>C. jejuni</i>	8	18	23	8	60	15	13	173	32	39	295	78
<i>C. laridis</i>	-	-	1	-	-	-	-	-	1	0	0	2
<i>C. coli</i>	-	-	1	-	-	-	-	-	1	0	0	2
<i>Cl. botulinum</i>	1	3	7	4	12	6	4	13	6	17	50	45
<i>Cl. perfringens</i>	2	260	-	1	97	-	1	83	-	9	582	0
<i>Klebsiella</i>	-	-	-	-	-	-	1	126	-	1	126	1
<i>Pseudomonas</i>	-	-	-	-	-	-	-	-	-	1	174	0
<i>Salmonella</i> ¹	297	8844	135	260	3283	129	269	2319	216	1463	24400	662
<i>Staph. aureus</i>	7	36	1	4	20	-	6	63	1	45	902	6
<i>Enterococcus faecalis</i>	-	-	-	3	163	-	1	22	-	13	397	1
<i>E.coli (EPEC)</i>	-	-	1	-	-	-	1	13	-	1	13	1
Total	317	9197	169	285	3862	150	301	2989	257	1611	27844	798
<i>2. Other agents</i>												
Toxic mushrooms	83	258	64	46	145	30	100	326	56	445	1454	289
Toxic plants	1	6	-	-	-	1	-	-	-	2	8	5
Toxic animals	-	-	-	-	-	-	1	3	-	1	3	0
Toxic chemicals	5	52	2	1	3	1	1	3	-	39	173	35
Total	89	316	66	47	148	32	102	332	56	487	1638	329
<i>3. Unknown</i> ²												
Not identified	34	559	20	19	274	5	11	56	11	139	2772	81
Not investigated	9	25	12	3	16	3	24	651	10	58	850	43
Total	43	584	32	22	290	8	35	707	21	197	3622	124
OVERALL TOTAL	449	10097	267	354	4300	190	438	4028	334	2295	33104	1251

* Outbreaks ** Cases in outbreaks *** Single cases

§ Based on the identification of the agent in the food and/or the patient

¹ other than *S. Typhi* and *S. Paratyphi*

² considered as foodborne on epidemiological grounds

Figure HU 3

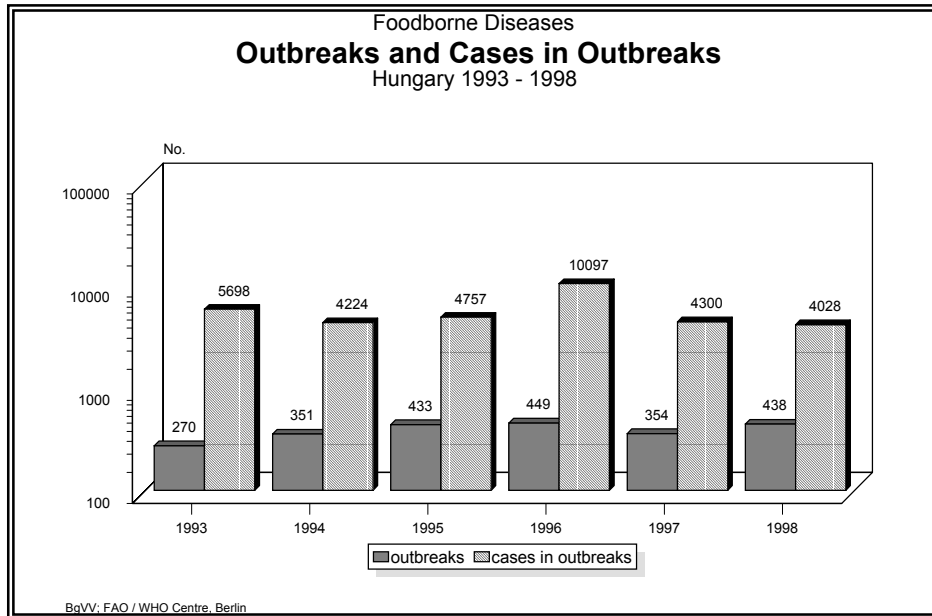
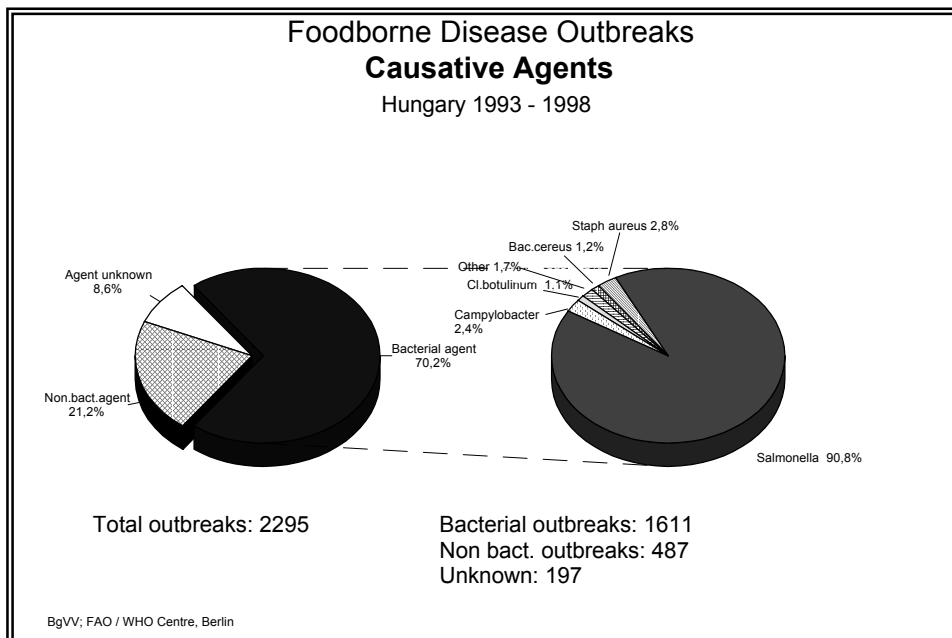


Figure HU 4



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Country Reports: *HUNGARY 1993 – 1998*

Table HU 3

Salmonella serotypes
in foodborne disease outbreaks
HUNGARY 1993 - 1998

Causative agents	Year					
	1993	1994	1995	1996	1997	1998
<i>S. Enteritidis</i>	136	226	358	408	364	453
<i>S. Typhimurium</i>	9	12	11	8	10	8
<i>S. Infantis</i>	2	2	1	3	2	1
<i>S. Hadar</i>	2	2	4	3	5	8
<i>S. Blockley</i>	-	-	-	1	1	3
<i>S. Saint-paul</i>	-	-	1	1	-	-
<i>S. Abony</i>	-	2	2	2	-	-
<i>S. Thompson</i>	1	-	2	-	-	-
<i>S. London</i>	3	-	1	-	-	-
<i>S. Manhattan</i>	1	-	2	1	-	-
<i>S. Meleagridis</i>	-	-	1	-	-	-
<i>S. Derby</i>	2	-	1	-	-	1
<i>S. Bareilly</i>	-	-	-	-	1	-
<i>S. Bredeney</i>	3	1	2	-	-	1
<i>S. Heidelberg</i>	1	1	-	-	-	1
<i>S. Brandenburg</i>	-	-	-	1	-	-
<i>S. Virchow</i>	1	1	-	1	3	-
<i>S. Agona</i>	-	1	-	-	-	1
<i>S. Bovis</i>	3	2	4	-	1	1
<i>S. Gold coast</i>	-	-	1	-	-	-
<i>S. Schwarzengrund</i>	-	-	-	-	1	1
<i>S. Berta</i>	-	1	-	-	-	-
<i>S. Glostrup</i>	-	-	-	-	-	1
<i>S. Newport</i>	-	-	-	-	-	1
<i>S. Essen</i>	-	-	-	-	-	1
<i>S. California</i>	-	1	-	-	-	-
Not identified serotypes	4	5	3	3	1	3
Total	168	257	394	432	389	485

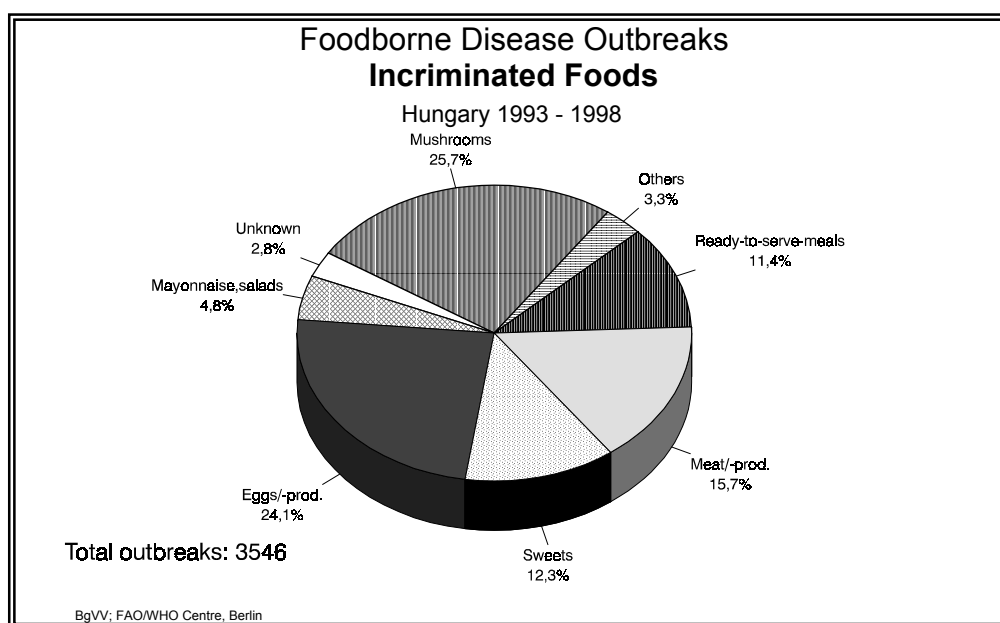
3.2 Incriminated foods

Table HU 4

**Foodborne disease outbreaks by incriminated foods
HUNGARY 1993 - 1998**

Food	Year						Total	
	1993	1994	1995	1996	1997	1998	No.	%
Milk	4	2	-	4	1	2	13	0.4
Milk products	-	1	3	-	-	2	6	0.2
Egg/egg prod.	60	84	134	175	160	242	855	24.1
Meats/-products	55	72	89	84	73	125	498	14.0
Sausages, white and black puddings	14	11	12	8	6	6	57	1.6
Ice cream	2	-	1	3	3	1	10	0.3
Sweets	38	64	77	93	82	71	425	12.0
Mayonnaise, dressings, salads	11	23	27	41	35	33	170	4.8
Pasta	7	12	17	19	18	11	84	2.4
Tinned foods	1	1	-	1	-	-	3	0.1
Mushrooms	101	131	212	196	87	183	910	25.7
Fruit/Vegetables	5	1	1	4	-	-	11	0.3
Ready-to-serve-meals	45	95	66	73	50	74	403	11.4
Unknown	8	7	20	15	29	22	101	2.8
Total	351	504	659	716	544	772	3546	100.0

Figure HU 5



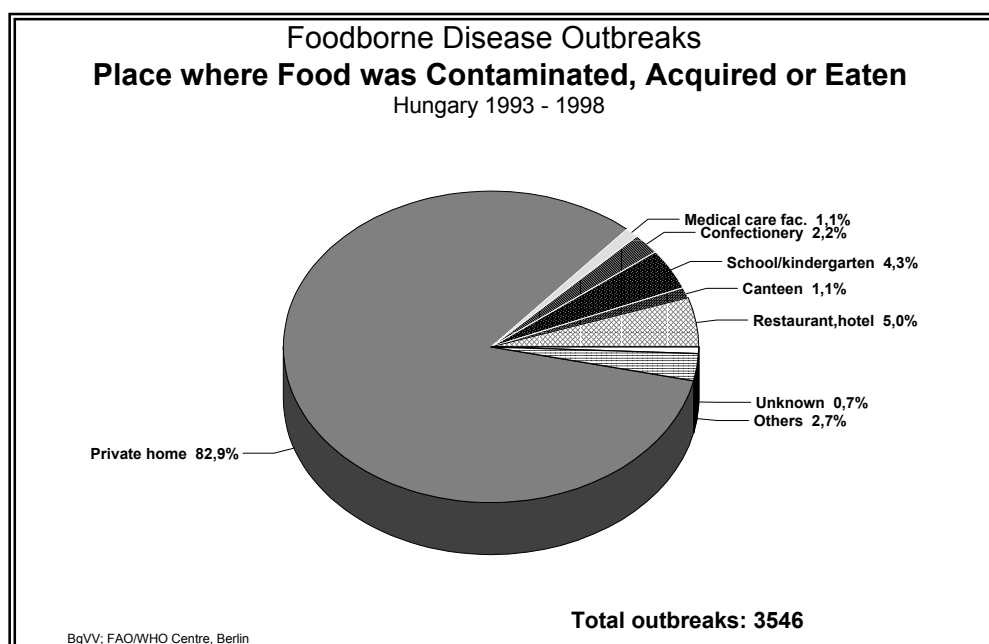
3.3 Place of contamination, acquisition or consumption

Table HU 5

**Foodborne disease incidents by place where food was contaminated, acquired or eaten
HUNGARY 1993 - 1998**

Place	1993	1994	1995	1996	1997	1998	1993-1998	
							No.	%
Restaurant/Hotel	28	35	23	30	22	39	177	5.0
Factory, other work place canteen	11	5	4	5	8	5	38	1.1
School, Kindergarten	27	27	25	23	20	32	154	4.3
Medical care facility	11	7	6	3	5	6	38	1.1
Private home	242	407	559	608	459	665	2940	82.9
Meat processing plant	5	1	2	-	4	-	12	0.3
Dairy	1	-	1	1	-	-	3	0.1
Confectionery	11	10	13	22	13	9	78	2.2
Other food processing plants	3	1	1	1	1	-	7	0.2
Retail store, market	1	3	15	8	3	5	35	1.0
Holiday home, camp	4	3	1	-	4	2	14	0.4
Social establishment	3	1	4	2	2	3	15	0.4
Other	-	1	3	2	2	3	11	0.3
Unknown	4	3	2	11	1	3	24	0.7
Total	351	504	659	716	544	772	3546	100.0

Figure HU 6



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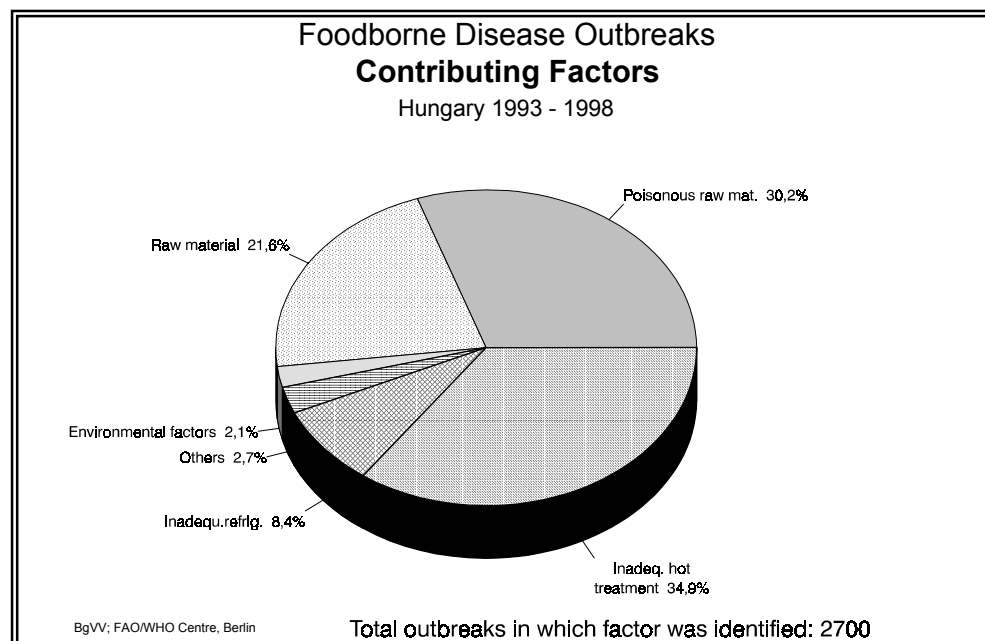
3.4 Contributing factors

Table HU 6

Foodborne disease outbreaks by contributing factors
HUNGARY 1993 - 1998

Contributing factor	1993	1994	1995	1996	1997	1998	1993-1998	
							No.	%
Temperature misuse	101	132	180	222	215	321	1171	33.0
Inadequate heating/cooking	69	90	138	179	171	269	916	25.8
Inadequat cooling (without or after heat processing)	23	33	33	41	37	49	216	6.1
Inadequat hot holding	6	8	2	2	6	3	27	0.8
Improper storage	3	1	7	-	1	-	12	0.3
Raw material	136	208	273	293	191	298	1399	39.5
Improper preparing of raw materials (lack of egg-shell disinfection, vegetable cleaning etc.)	15	9	7	6	5	-	42	1.2
Infected raw material	42	90	65	119	106	120	542	15.3
Poisonous raw material (mushrooms, weed-seed, botulotoxin etc.)	79	109	201	168	80	178	815	23.0
Environmental factors	8	21	6	5	12	4	56	1.6
Contamination by infected person	4	12	4	3	5	1	29	0.8
Contaminated equipment	4	9	2	2	7	3	27	0.8
Other	3	57	5	5	2	2	74	2.1
Unknown	103	86	195	191	124	147	846	23.9
Total	351	504	659	716	544	772	3546	100

Figure HU 7



4. Additional Information

In 1996 a major foodborne outbreak was reported involving 5243 cases. The cause of this outbreak was the consumption of strawberry soup, prepared by cold procedure in the kitchen of a joint company dealing with child-catering and transported to collective kitchens. Laboratory examinations detected in the food samples high bacterial count (10^9) of *Salmonella* Enteritidis (PT 6). The result of the laboratory examination of the diseased persons was also *Salmonella* Enteritidis (PT 6). The way of transmission of the pathogen into the food is unknown.

In 1998 a new food-microbiological decree was issued: 4/1998. (XI. 11.) EüM decree on the permissible level of microbiological contamination in food. Guidelines from the International Commission of Microbiological Specification for Foods (1986) and FAO (1992) were taken as basis to make food groups and to establish limit values, considering some national characteristics, too. This decree also deals with entomological contamination.

In the field of modern rapid diagnostics, a step forward was done that in cooperation with the National Epidemiological Centre, with the introduction of diagnostic by PCR and with the Bac-Trac, which was placed temporarily at the National Centre for Public Health.