



NORWAY (NOR)

Population: 4.4 million (1998)

Area: 324 919 km²



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1. General information

National data on foodborne infections and intoxications are collected by two different systems:

1. Surveillance System for Communicable Diseases (MSIS), administered by the National Institute of Public Health. Laboratory confirmed cases of foodborne infections are individually reported by name from both clinicians and laboratories. Clinicians are also obliged to notify MSIS in case of a suspected outbreak of foodborne infections or intoxication.

Prior to 1998, aggregated data on acute gastroenteritis (until 1997) and intoxications (until 1995) were also reported by clinicians on a weekly basis. Data from MSIS are published in the weekly MSIS Bulletin and annual reports. The National Institute of Public Health distributes these data to medical doctors, public health nurses and food control authorities. The MSIS report is available at <http://www.folkehelse.no/Nyhetsbrev/>.

2. Local (municipal) food control units receive notifications of suspected foodborne infections and intoxications from clinicians, food establishments and the public. These local units register and investigate the causal relationships. Data are then submitted to the Norwegian Food Control Authority according to formal reporting procedures established in 1988. The information is collated and published annually by the Norwegian Food Control Authority.

WHO Surveillance Programme for Control of Foodborne Infections and Intoxications in Europe
7th Report

Country Reports: *NORWAY 1993 – 1998*

In 1999 the Norwegian Zoonosis Centre was established at the National Veterinary Institute in collaboration with the National Institute of Public Health. The Zoonosis Centre collects, analyses and publishes data on zoonoses and zoonotic agents.

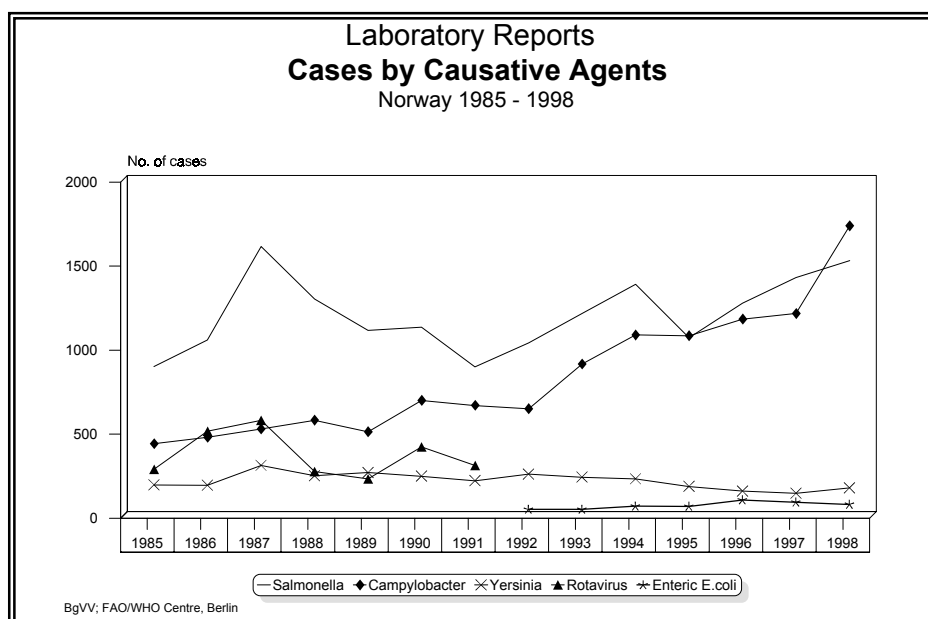
2. Statutory notification

Table NO 1

Laboratory reported cases by disease
NORWAY 1993 - 1998

Disease	Year					
	1993	1994	1995	1996	1997	1998
Hepatitis A	99	76	250	521	335	507
<i>Incidence rate</i>	2.3	1.8	5.8	12.1	7.8	11.8
Amoebiasis	132	76	92	85	118	177
<i>Incidence rate</i>	3.1	1.8	2.1	2.0	2.7	4.1
Shigellosis	137	288	146	173	163	171
<i>Incidence rate</i>	3.2	6.7	3.4	4.0	3.8	4.0
Salmonellosis	1178	1352	1034	1239	1393	1494
<i>Incidence rate</i>	27.4	31.4	24.0	28.8	32.4	34.7
Campylobacteriosis	877	1050	1046	1145	1178	1700
<i>Incidence rate</i>	20.4	24.4	24.3	26.6	27.4	39.5
Yersiniosis	204	149	149	121	108	140
<i>Incidence rate</i>	4.7	3.5	3.5	2.8	2.5	3.3
Enteric E. coli inf. (all)	12	31	30	68	55	42
<i>Incidence rate</i>	0.3	0.7	0.7	1.6	1.3	1.0
EHEC-infections	1	1	0	10	8	6
<i>Incidence rate</i>	0.0	0.0	0.0	0.2	0.2	0.1
Botulism	0	1	1	0	8	6
<i>Incidence rate</i>	0.0	0.0	0.0	0.0	0.2	0.1
Giardiasis	270	254	206	198	290	373
<i>Incidence rate</i>	6.3	5.9	4.8	4.6	6.7	8.7
Para-/typhoid fever	26	49	38	50	42	59
<i>Incidence rate</i>	0.6	1.1	0.9	1.2	1.0	1.4

Figure NO 2



2.1 Salmonellosis in humans

Table NO 2

Salmonellosis - Distribution of Serotypes NORWAY 1993 - 1998

Salmonella serotype	1993	1994	1995	1996	1997	1998	Total	
							No.	%
<i>S. Enteritidis</i>	607	771	564	625	785	827	4179	54.3
<i>S. Typhimurium</i>	231	188	130	211	221	203	1184	15.4
<i>S. Heidelberg</i>	6	11	10	18	13	12	70	0.9
<i>S. St.paul</i>	30	10	3	4	8	13	68	0.9
<i>S. Newport</i>	15	17	12	4	8	5	61	0.8
<i>S. Virchow</i>	34	59	43	66	54	46	302	3.9
<i>S. Agona</i>	21	20	22	23	19	28	133	1.7
<i>S. Java</i>	10	17	11	21	12	19	90	1.2
<i>S. Berta</i>	1	3	1	16	0	1	22	0.3
<i>S. Hadar</i>	9	18	28	27	27	42	151	2.0
<i>S. Montevideo</i>	2	9	13	26	8	6	64	0.8
<i>S. Stanley</i>	12	24	15	15	15	34	115	1.5
<i>S. Infantis</i>	28	17	31	6	11	16	109	1.4
Other serotypes	172	188	151	177	220	242	1150	15.0
Total	1178	1352	1034	1239	1393	1494	7690	100.0

Figure NO 2

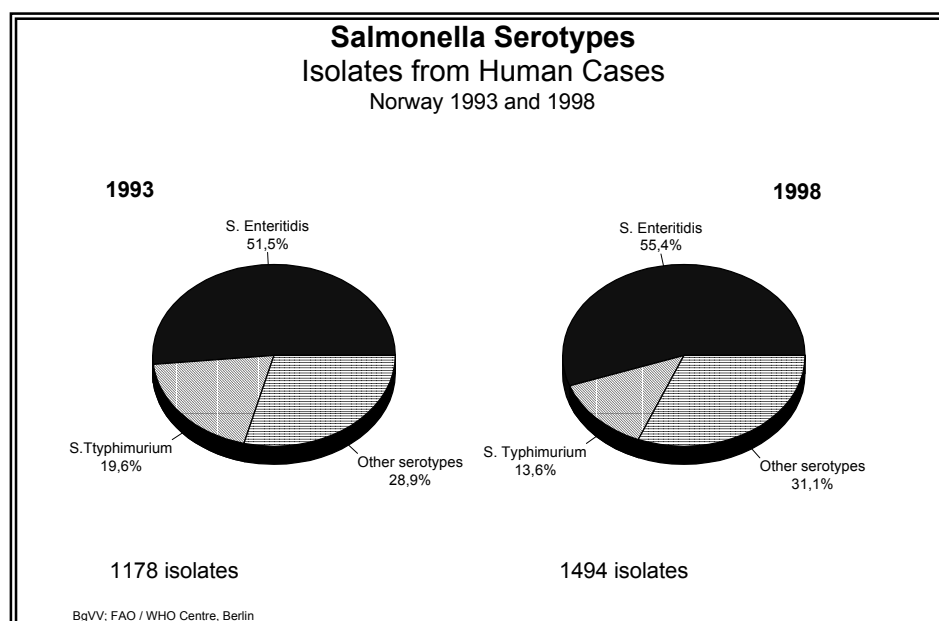


Table NO 3

Multidrug-resistant S. Typhimurium strains isolated from humans
NORWAY 1993 - 1998

Year	S. Typhimurium Total No. isolates	DT 104 (%)	DT 104 (% of R-Type ACSSuT)
1998	203	31 (15%)	70%

Table NO 4

Salmonellosis, Campylobacteriosis and EHEC-infections acquired abroad* by year
NORWAY 1992 - 1998

Year	Salmonellosis		Campylobacteriosis		EHEC-infection	
	Acquired abroad*	%**	Acquired abroad*	%	Acquired abroad*	%
1992	722	94	234	85	1	50
1993	849	89	365	70	1	100
1994	999	93	391	71	1	100
1995	865	89	498	55	0	0
1996	1000	86	592	57	8	80
1997	1079	85	649	61	1	13
1998	1255	88	884	56	4	67

* Acquired abroad: Patients who developed symptoms abroad or shortly after their return home.

** Percentage of the cases acquired abroad of all cases where place of infection is known.

3. Investigated outbreaks

Two different categories of outbreaks were recorded:

- **Confirmed:** Outbreaks in which the suspected source of infection was laboratory-confirmed. In foodborne outbreaks, the causal agent was identified in the suspected food source. In the case of a waterborne outbreak, bacteria indicating faecal contamination were demonstrated in the suspected water source.
- **Other:** Outbreaks in which suspected source of infection was not laboratory-confirmed.

Table NO 5

Foodborne and waterborne disease outbreaks
No. of outbreaks and cases in outbreaks
NORWAY 1992 - 1998

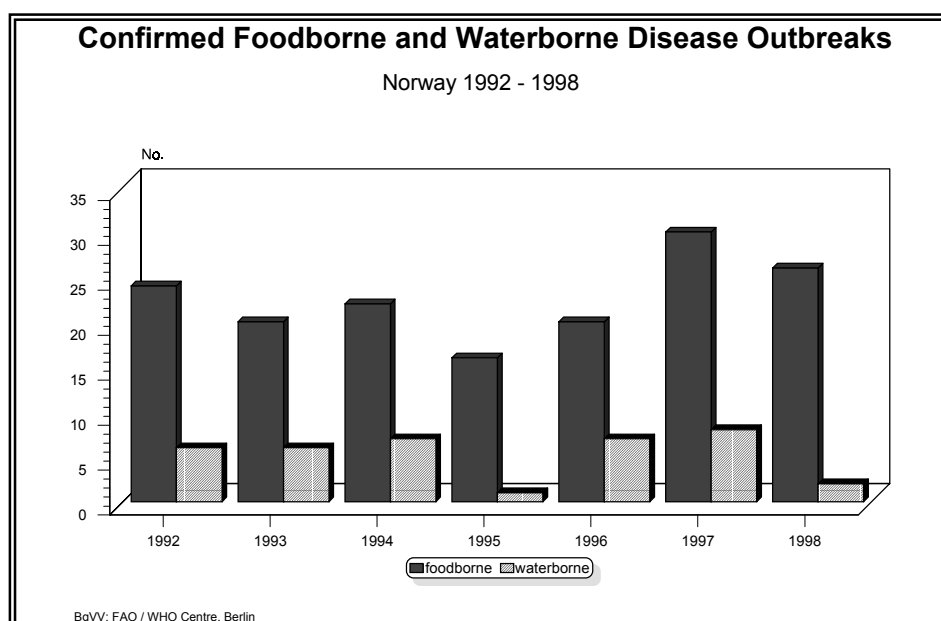
Year	Confirmed outbreaks		Other outbreaks		Total	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
1992	30	> 2347	143	> 509	173	> 2856
1993	26	> 249	217	> 1157	243	> 1406
1994	29	> 258	104	> 1112	133	> 1370
1995	17	> 270	90	> 721	107	> 991
1996	27	> 674	139	> 879	166	> 1553
1997	38	> 892	153	> 721	191	> 1613
1998	28	> 1615	202	> 941	230	> 2556

Table NO 6

Confirmed foodborne and waterborne disease outbreaks by source of infection
No. of outbreaks and cases in outbreaks
NORWAY 1992 - 1998

Year	Foodborne outbreaks		Waterborne outbreaks		Total confirmed outbreaks	
	Outbreaks	Cases	Outbreaks	Cases	Outbreaks	Cases
1992	24	> 253	6	> 2094	30	> 2347
1993	20	> 124	6	> 125	26	> 249
1994	22	> 138	7	> 120	29	> 258
1995	16	> 260	1	> 10	17	> 270
1996	20	> 148	7	> 526	27	> 674
1997	30	> 138	8	> 754	38	> 892
1998	26	> 602	2	> 1013	28	> 1615

Figure NO 3



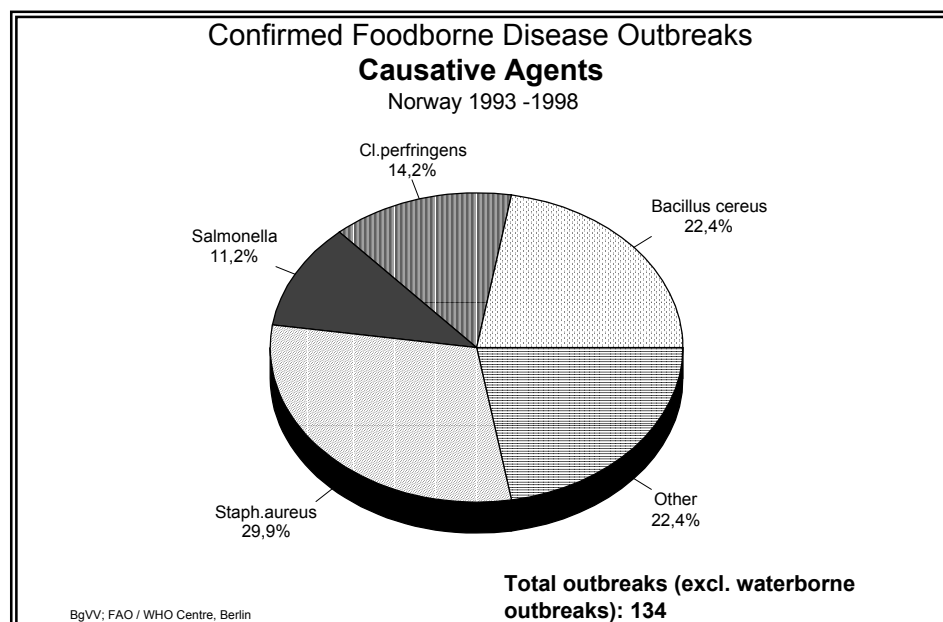
3.1 Causative agents

Table NO 7

Confirmed foodborne and waterborne disease outbreaks by causative agents NORWAY 1993 -1998

Agent	Year						Total	
	1993	1994	1995	1996	1997	1998	1993-1998 No.	%
Foodborne								
<i>Bacillus cereus</i>	5	1	7	5	7	5	30	18.2
Other <i>Bacillus</i> spp.	1	-	1	1	-	-	3	1.8
<i>Cl.perfringens</i>	3	5	2	3	-	6	19	11.5
<i>C. jejuni</i>	2	1	2	-	1	2	8	4.8
<i>Salmonella</i>	2	-	1	1	11	-	15	9.1
<i>Staph. Aureus</i>	7	12	2	10	2	7	40	24.2
Other agents (specified)	-	¹ <i>Aeromonas</i> ; ¹ <i>List. monocyt.</i>	<i>Strepto-</i> <i>coccus</i>	-	<i>E.coli</i> 0157; Histamin; <i>Cl.botulin</i> (3).	<i>Cl.botul.</i> (2) Others (4)	14	8.5
Yeasts	-	1	-	-	4	-	5	3.0
Subtotal	20	22	16	20	30	26	134	81.2
Waterborne	6	7	1	7	8	2	31	18.8
TOTAL	26	29	17	27	38	28	165	100.0

Figure NO 4



3.2 Incriminated food

Table NO 8

Confirmed food and waterborne disease outbreaks by incriminated foods
NORWAY 1993 -1998

Food	Year						Total	
	1993	1994	1995	1996	1997	1998	1993-1998	
	No.						No.	%
Milk/Cheese	2	3	3	2	-	1	11	6.7
Egg/egg prod.	-	-	-	-	-	1	1	0.6
Red meat (beef, pork, lamb, minced meat raw)	4	6	5	3	5	5	28	17.0
Chicken	-	-	-	4	1	-	5	3.0
Fish/seafood	1	8	1	2	5	1	18	10.9
Desserts/cakes	-	-	-	1	-	-	1	0.6
Fruit/Vegetables	6	-	2	-	-	-	8	4.8
Ready-to-serve-meals	-	-	-	4	1	2	7	4.2
Drinking water	8	8	2	8	9	3	38	23.0
Other	5	4	4	3	17	15	48	29.1
TOTAL	26	29	17	27	38	28	165	100.0

Figure NO 5

