Kansanterveyslaitos
Folkhälsoinstitutet
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INFECTIOUS DISEASES IN FINLAND 2002

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Cover

The staff of the Surveillance and Epidemiologic Investigations Unit, Department of Infectious Disease Epidemiology

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INTRODUCTION

Epidemiological trends

A major increase in methicillin-resistant *Staphylococcus aureus* findings (MRSA) was a cause of concern in 2002. There were cases and local epidemics in various parts of Finland. A national group of experts is revising recommendations for intensifying MRSA prevention. The number of *Streptococcus pneumoniae* strains with reduced penicillin susceptibility increased as well, although not as clearly as MRSA. Only a few vancomycin-resistant *Enterococcus* strains were notified.

A hepatitis A epidemic started spreading principally among injecting drug users in the end of 2001, and it expanded into several local outbreaks. The number of new HIV infections among injecting drug users continued to decrease compared to the preceding two years. The health counseling provided to injecting drug users was intensified in various parts of Finland based on surveillance data and epidemiological analyses.

There was an extensive Pogosta disease epidemic following an almost biblical seven-year pattern. It was concentrated once again in Eastern Finland. As the epidemic was predictable, it was possible to plan several epidemiological and microbiological investigations in advance. Clinicians and units carrying out diagnostics and surveillance participated in this work. Once the investigations are completed, they will give important additional information on the epidemiology of this disease, which occurs in limited geographical areas in the Nordic countries and Russia.

An outbreak caused by ciprofloxacin-resistant gonococci was detected in the Päijät-Häme area. Apparently it had been imported from Russia. It took months to trace complicated infection chains and stop the epidemic.

As an accomplishment of Finland's effective vaccination program, this was the second year in a row when no serious *Haemophilus influenzae* type b (Hib) infections were notified among under 15-year-olds. Altogether there were only four cases in all age groups. Hib may soon be altogether eradicated from the Finnish population.

Developing the National Infectious Diseases Register

Remote access through encrypted Internet connection became the only way of availing of the information in the National Infectious Diseases Register at healthcare districts, as feedback on paper was stopped in the end of the year. The current preparations to amend statutes aim at making it possible for health centers to remote access the register concerning cases in their own municipality.

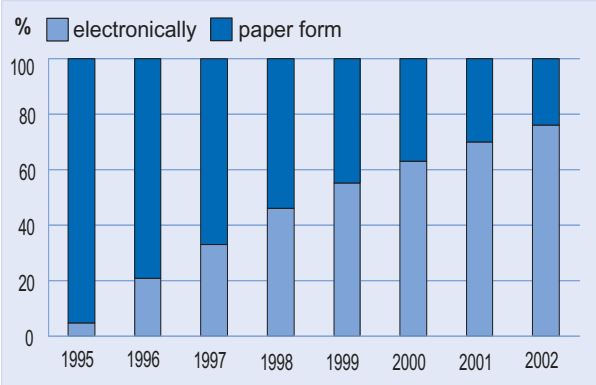
Laboratories have continued to increase electronic notifying. Of all laboratory notifications, 76% were made in electronic form in 2002 (figure 1), and the proportion is on the increase. By this method notifications are more timely and there are less errors as well as manual work from re-entry. There are considerable differences in notification delays among the different laboratories (figure 2). The benefits of electronic notification can be increased substantially if the longest notification delays, which clearly exceed the permitted delays, are reduced. Shorter delays will benefit especially the remote users of the register in healthcare

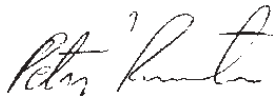
districts, and, after infectious diseases legislation is probably amended in the beginning of 2004, gradually also health centers.

In order to avoid small discrepancies in statistics that may cause confusion, the database of the National Infectious Diseases Register has previously been locked in May following the end of the calendar year. Consequently single cases with long delays have not been shown in reports. As remote use of the register becomes more common, it would be useful for remote users in healthcare districts and in the future also in health centers to be able to access data of all the cases. For this reason the information in the register will no longer be locked, and it will possible to enter single cases at a later point of time.

Figure 1

Proportion of electronic laboratory notification to the National Infectious Diseases Register 1995–2002



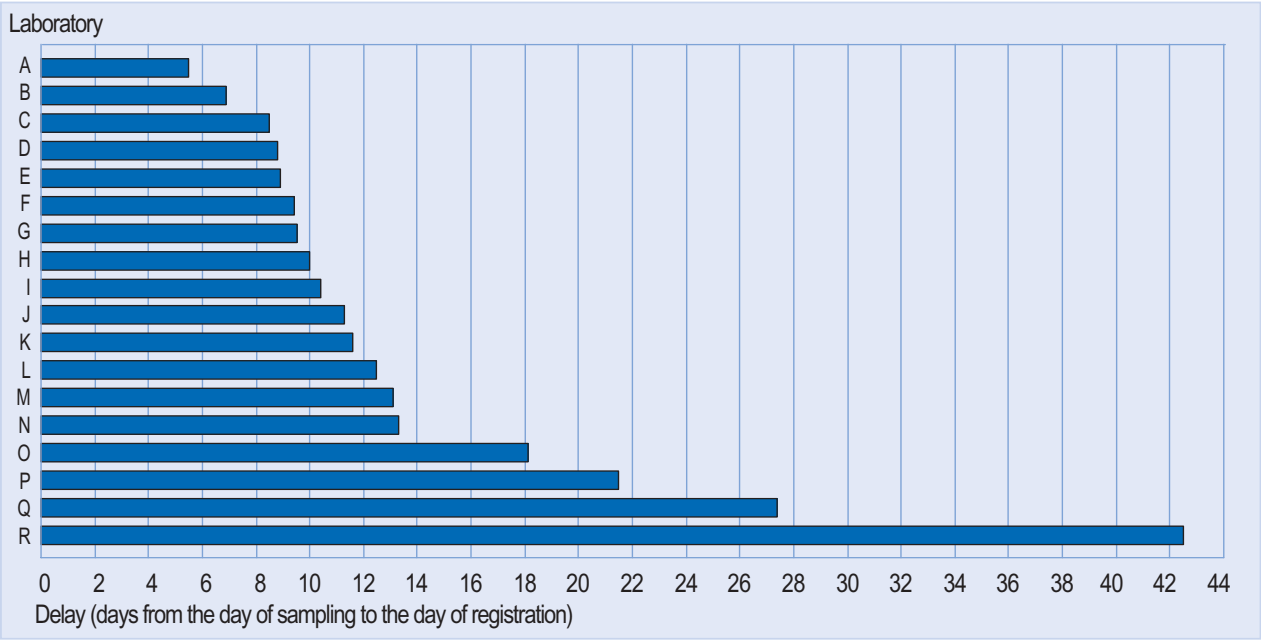


Petri Ruutu

Chief, Surveillance and Epidemiologic Investigations

Figure 2

Delay in electronic laboratory notification to the National Infectious Diseases Register by laboratory in 2002. In order to make the inforamtion comparable, the analysis does not include mycobacteria and serological findings.



RESPIRATORY INFECTIONS

Influenza A and B

The influenza A epidemic that broke out at the turn of the year 2001/2002 (peak in March 2002) was mainly caused by a virus that antigenically and genetically belongs to the A/Sydney/5/97(H3N2) group of viruses, which first caused an epidemic in Finland during winter 1997/1998. The virus of winter 2002 was antigenically close to the A/Panama/2007/99 virus used in the influenza vaccination in autumn 2001. According to both the Infectious Disease Register findings (figure 3) and a surveillance study on the upper respiratory infections of conscripts, the A/H3N2 epidemic in winter 2002 was more limited than the epidemic caused by a closely related virus in winter 1999/2000. As expected, the A/H3N2 epidemic of winter 2002 affected people age 65 years or older more than the A/H1N1 epidemic of the previous winter.

The influenza B epidemic of winter 2002 was limited. Its modest peak occurred a little later than the peak of the A/H3N2 epidemic (figure 4). According to the National Infectious Diseases Register, the epidemic affected hardly at all those age 65 years old or older. The virus was antigenically and genetically much like the vaccination virus B/Sichuan/379/99 used in autumn 2001. During the spring of 2002 a variant of the B virus belonging to another developmental branch spread to Europe (B/HongKong/330/91), but was not found in Finland.

Figure 3

Influenza A January 1995 – April 2003

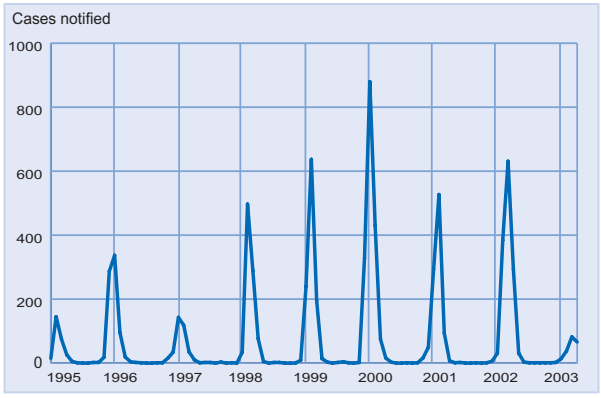


Table 1

Distribution of influenza A cases by age and sex in 2002

Age	Male	Female	Total
0 .. 4	308	216	524
5 .. 9	51	36	87
10 .. 14	31	17	48
15 .. 19	95	13	108
20 .. 24	54	23	77
25 .. 29	25	27	52
30 .. 34	20	23	43
35 .. 39	14	21	35
40 .. 44	17	9	26
45 .. 49	16	17	33
50 .. 54	20	17	37
55 .. 59	15	16	31
60 .. 64	24	15	39
65 .. 69	15	18	33
70 .. 74	28	25	53
75 ..	71	84	155
Total	804	577	1381

Figure 4

Influenza B January 1995 – April 2003

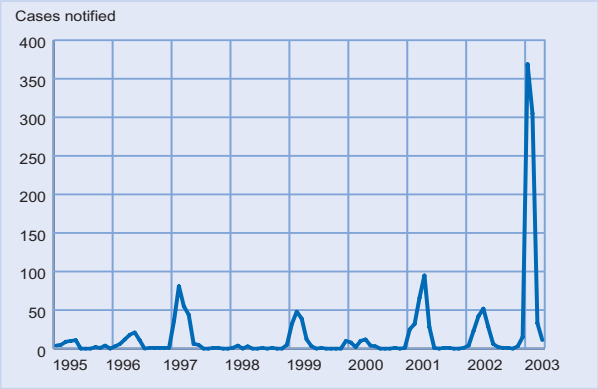


Table 2

Distribution of influenza B cases by age and sex in 2002

Age	Male	Female	Total
0 .. 4	16	17	33
5 .. 9	10	8	18
10 .. 14	10	6	16
15 .. 19	24	9	33
20 .. 24	15	1	16
25 .. 29	4	7	11
30 .. 34	8	6	14
35 .. 39	1	2	3
40 .. 44	4	2	6
45 .. 49	-	2	2
50 .. 54	1	6	7
55 .. 59	3	1	4
60 .. 64	2	-	2
65 .. 69	3	2	5
70 .. 74	1	2	3
75 ..	1	3	4
Total	103	74	177

Legionella

Seventeen legionella cases were notified, which is as many as in the preceding year. The Department of Infectious Disease Epidemiology interviews all legionella patients, with the main objective of finding sources of infection related to travel. Eleven of the cases had traveled abroad prior to falling ill.

The diagnosis was based on the detection of legionella antigen in the urine in two cases, on culture in one case and on antibody tests in the rest of the cases. There are problems in interpreting the serological diagnostics, because the antibodies rise slowly and it is difficult to distinguish an old serological scar from recent infection, especially if the clinical picture of the disease is unknown. The quickest and most reliable way of making a legionella diagnosis is to use both a urine legionella antigen test and a legionella culture on respiratory secretions. Especially the use of the urine legionella antigen test should be increased.

Whooping cough – *Bordetella pertussis*

The number of notified whooping cough cases started increasing in August. The total number was almost double compared with 2001, when the incidence of the disease was low, but one third lower than in the peak year 1999. Most cases were diagnosed based on antibody findings.

The number of cases increased most prominently among 5–9-year-olds, among whom the incidence was highest. Relative to the size of the population, the most cases were found in the Åland, Kanta-Häme, Central Finland and Northern Bothnia healthcare districts. As of the beginning of 2003, a whooping cough booster vaccination, to be administered to 6-year-olds, was added to the general vaccination program.

Table 3

Whooping cough cases and incidence by age group in 2002

Age	Male	Female	Total	Cases/ 100 000 pop.
0	13	14	27	48,7
1	3	2	5	8,9
2	1	1	2	3,5
3	5	3	8	13,8
4	5	7	12	21,0
5	8	9	17	28,5
6	9	12	21	34,4
7	16	26	42	66,2
8	15	22	37	56,5
9	13	26	39	59,8
10	12	19	31	46,1
11	16	24	40	60,4
12	11	9	20	30,0
13	17	12	29	44,8
14	11	13	24	37,0
15	13	9	22	35,8
16	5	5	10	16,0
17	2	3	5	7,7
18	4	1	5	7,5
19	16	0	16	23,4
20	3	2	5	7,4
>20	55	109	164	4,2
Total	253	328	581	11,2

Figure 5

Bordetella pertussis January 1995 – April 2003

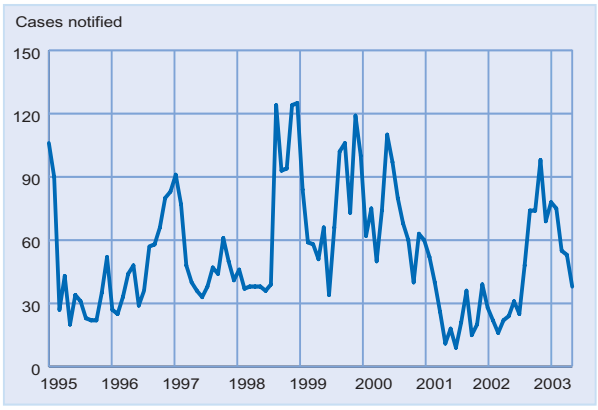
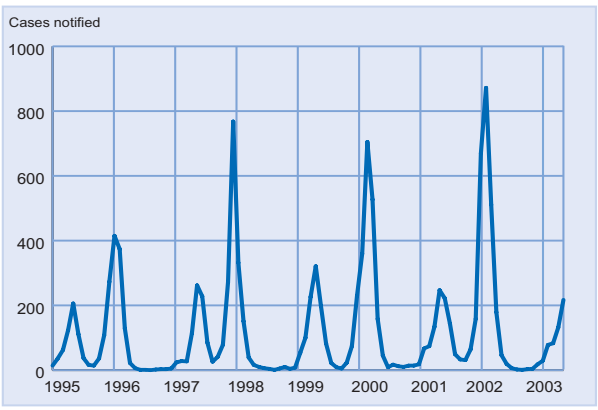


Figure 6

Respiratory Syncytial Virus (RSV) January 1995 – April 2003



Mycoplasma – *Mycoplasma pneumoniae*

The number of notified *Mycoplasma pneumoniae* cases was approximately 40% lower than during the previous year. As usual, the incidence was the highest in school-age children and young people.

Figure 7

Mycoplasma pneumoniae
January 1995 – April 2003

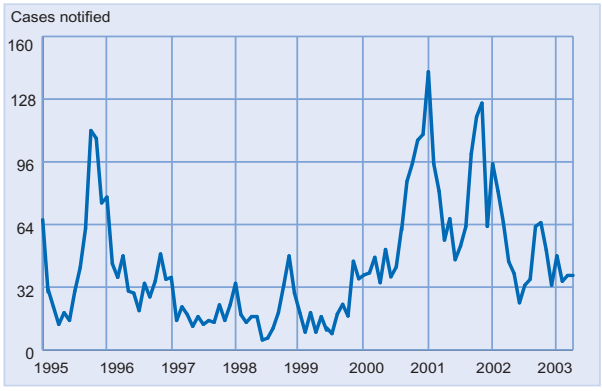


Table 4

Distribution of *Mycoplasma pneumoniae* cases by age and sex in 2002

Age	Male	Female	Total
0 .. 4	13	18	31
5 .. 9	37	42	79
10 .. 14	52	69	121
15 .. 19	53	49	102
20 .. 24	21	27	48
25 .. 29	15	28	43
30 .. 34	9	33	42
35 .. 39	13	33	46
40 .. 44	11	28	39
45 .. 49	9	19	28
50 .. 54	6	12	18
55 .. 59	4	8	12
60 .. 64	4	3	7
65 .. 69	3	1	4
70 .. 74	1	5	6
75 ..	2	2	4
Total	253	377	630

GASTRO-INTESTINAL INFECTIONS

The number of notified cases of gastrointestinal infections caused by bacteria was on the same level as in previous years. The number of notified campylobacter infections was for the first time lower than in the preceding year. The number of salmonella cases was the lowest since the current notification system was implemented in 1995.

Salmonella

A total of 2,357 salmonella cases were notified (table 5). The number was almost 20% lower than in 2001 (2,734 cases). This was caused by a decrease in infections acquired abroad (1,829 cases in 2002, 2,226 cases in 2001). Domestically acquired infections (423 cases), on the other hand, increased compared to the preceding year (364 cases in 2001). The incidence in the whole country was 43 cases / 100,000 population. The incidence was highest in the Helsinki and Uusimaa (61) and in the Eastern Savo healthcare districts (52) and lowest in the Western (18) and Southern Bothnia (18) healthcare districts. Of all salmonella strains, approximately 13% have a reduced susceptibility to ciprofloxacin.

Three notified cases were caused by serotype *S.* Typhi and one by serotype *S.* Paratyphi A. All these infections were of foreign origin (2 from India, 1 from Bangladesh), except for one domestically acquired secondary typhoid infection.

More than half (54%) of the cases of domestic origin were caused by serotype *S.* Typhimurium. This traditional Finnish type

occurs in cattle. The next most common serotype in domestic cases was *S.* Enteritidis (10%). The remaining 36% of the domestic cases were caused by salmonellae of 35 different serotypes. Some of them, as well as *S.* Enteritidis, have sporadically been found in domestic production animals, but they are not known to have a permanent domestic reservoir. Domestic infections may be secondary infections from a family member who has travelled abroad, and some may be caused by mildly contaminated imported foodstuffs.

Salmonella outbreaks in 2002

Latvia

A group of 44 pensioners made a bus trip to Latvia in May. Some of them fell ill with sudden diarrhea. The first symptoms began already on the last day of the trip. A stool sample was taken from the entire group, and *S.* Enteritidis FT1 was found in 28. The outbreak was investigated in co-operation with the Latvian health authorities. The infection source was probably a hotel in Riga. At least one member of the staff had an *S.* Enteritidis infection. According to local investigations, chicken eggs were suspected as the infection source, but it was no longer possible to test the lot.

Mung beans

A cluster of 11 *S.* Abony cases was found in Northern Savo in October. This is a rare serotype in Finland. All the infected patients were interviewed. They were all found to have eaten mung bean sprouts. The same germinator company had produced sprouts for the school and lunch cafeterias where the patients had lunch. *Salmonella* was not discovered in the mung bean seeds or bean sprouts, but according to exposure information the sprouts were considered to be the probable source.

Madrid

A group of employees from a Helsinki-based company traveled to Madrid in September. During the trip a part of the group had symptoms of a gastrointestinal infection. In Finland, stool samples were taken from 44 passengers. Thirty samples grew *S.* Enteritidis FT4. The outbreak was notified to the Spanish health authorities. They investigated the hotel and restaurants where the group had eaten during their trip. In addition a questionnaire survey was carried out, but the source of the infection was not found.

Infections of foreign origin

S. Enteritidis caused almost half (49%) of all infections acquired abroad. *S.* Typhimurium (6%) and *S.* Hadar (4%) were the next most common causes. The remaining 41% of the foreign infections were caused by 105 different serotypes. *S.* Enteritidis infections were brought from several countries. Most of these cases (approximately 25%) were related to travelling to Spain. Eggs or products containing egg that have not been heated sufficiently are the most important foodstuffs carrying *S.* Enteritidis outside The Nordic Countries. These are the probable source also in Spain. Only 14% of all salmonella infections acquired abroad were related to a trip to Spain, however. The most common source of salmonella infections was Thailand (19% of all infections of foreign origin). Infections were acquired in a total of 85 countries. The salmonella infections from Thailand had a great diversity: 49 serotypes were associated with a trip to that country.

Table 5

Salmonella infections acquired domestically or during travel 1996–2002, as notified by laboratories (does not include *S.* Typhi ja *S.* Paratyphi findings)

Five most common serotypes

	1996		1997		1998		1999		2000		2001		2002
Domestically acquired infections													
S. Typhimurium	208	*S.* Typhimurium	510	*S.* Typhimurium	224	*S.* Typhimurium	375	*S.* Typhimurium	125	*S.* Typhimurium	154	*S.* Typhimurium	229
S. Enteritidis	120	*S.* Enteritidis	94	*S.* Newport	66	*S.* Agona	85	*S.* Enteritidis	53	*S.* Enteritidis	70	*S.* Enteritidis	43
S. Infantis	27	*S.* Hadar	33	*S.* Enteritidis	65	*S.* Enteritidis	85	*S.* Agona	27	*S.* Agona	41	*S.* Hvittingfoss	28
S. Stanley	16	*S.* Infantis	25	*S.* Saintpaul	23	*S.* Hardar	10	*S.* Hadar	18	*S.* Infantis	19	*S.* Abony	16
S. Wirchow	13	*S.* Newport	24	*S.* Infantis	21	*S.* Poona	10	*S.* Virchow	15	*S.* Ohio	12	*S.* Agona	16
Others	120	Others	164	Others	131	Others	96	Others	91	Others	104	Others	99
Total	501		850		530		661		329		402		423
Infections acquired abroad													
S. Entertidis	930	S. Entertidis	882	S. Entertidis	912	S. Entertidis	878	S. Entertidis	1 040	S. Entertidis	1 225	S. Entertidis	904
S. Typhimurium	161	S. Typhimurium	144	S. Typhimurium	124	S. Hadar	112	S. Typhimurium	203	S. Typhimurium	136	S. Typhimurium	110
S. Virchow	144	S. Virchow	82	S. Virchow	80	S. Typhimurium	103	S. Hadar	124	S. Hadar	96	S. Hadar	69
S. Hadar	64	S. Hardar	55	S. Hadar	77	S. Virchow	74	S. Braenderup	49	S. Virchow	79	S. Stanley	64
S. Infantis	58	S. Agona	33	S. Infantis	61	S. Braenderup	38	S. Virchow	49	S. Stanley	62	S. Virchow	52
Others	894	Others	709	Others	801	Others	666	Others	746	Others	748	Others	630
Total	2251		1927		2055		1873		2211		2350		1829
Country of probable transmission not notified													
Total	153		268		359		499		228		154		105
Grand total	**2905**		**3045**		**2944**		**3033**		**2768**		**2906**		**2357**

Data on the country of probable transmission have been collected in collaboration with the Laboratory for Enteric Bacteria of the Department of Microbiology.
Due to unlocking of the data entry date in the National Infectious Disease Register, cases notified with delay are now shown. Consequently, figures for years before 2002 demonstrate changes.

Figure 8

The 12-month moving average of salmonella and campylobacter cases 1995–2002

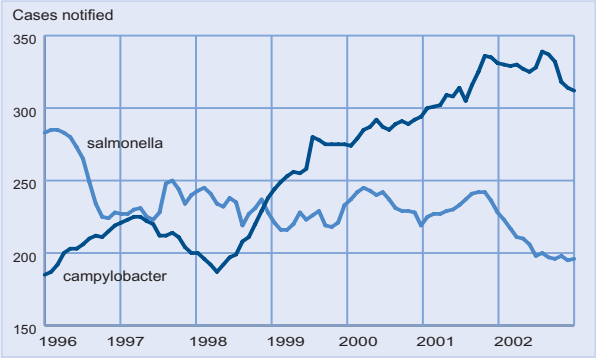
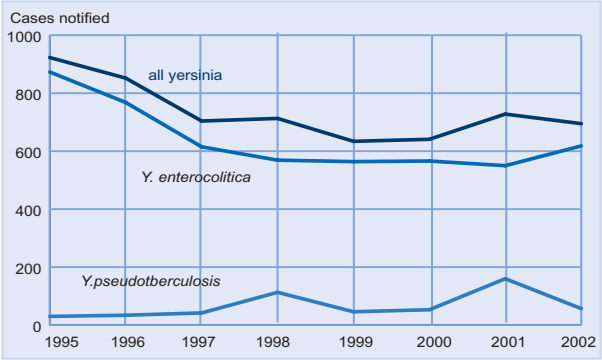


Figure 9

Cases of *Yersinia enterocolitica* and *pseudotuberculosis* 1995–2002



Campylobacter

The number of notified *Campylobacter* cases has increased almost every year since 1995 (2,197 cases in 1995, 3,969 cases in 2001). There were 3,738 cases in 2002, which is six percent less than in the preceding year. The typical seasonal distribution of Campylobacter infections was evident also in 2002: most cases occurred in July (770 cases) and August (584 cases). During the other months there were 150–300 cases. The incidence in the whole country was 72 / 100,000 population. The incidence was highest in the Helsinki and Uusimaa (114 cases) and in the Pirkanmaa (78 cases) healthcare districts, and the lowest in the Western Bothnia (32) and Lapland (36) healthcare districts.

Yersinia – *Yersinia enterocolitica* and *Yersinia pseudotuberculosis*

The number of *Yersinia enterocolitica* cases in 2002 (618 cases) was approximately 12% higher compared to the preceding year (550 cases in 2001). The incidence in the whole country was 12 cases / 100,000 population. The incidence was highest in the Helsinki and Uusimaa (2 cases) and in the Central Bothnia (18 cases) healthcare districts and lowest in the Western Bothnia (3 cases) and Varsinais-Suomi (4 cases) healthcare districts.

Yersinia pseudotuberculosis has caused several outbreaks since late 1990's. Some of them have been transmitted by fresh produce produced in Finland. The number of notified cases was 57 in 2002. This number, on the same level as most other years, was much lower than in 2001 (160 cases), when the latest outbreak caused by this bacterium took place. The incidence in the whole country was low, 1 / 100,000 population; it was highest in the Åland (4) and in the Kymenlaakso (4) healthcare districts.

Shigella

The number of *Shigella* cases (87 in 2002) has been below one hundred, except in 2001 (223 cases), when the substantial number was caused by two domestic outbreaks. Nearly 60% of the cases were caused by *S. sonnei*. As in recent years, most cases (89%) were acquired abroad. The majority of the notified infections were related to trips to Egypt (20%) and Turkey (12%). All the shigella strains were susceptible to fluoroquinolones.

Table 6

Shigella infections acquired domestically and abroad 1995–2002

	1995	1996	1997	1998	1999	2000	2001	2002
Domestically acquired infections	5	13	11	8	5	9	59	7
Infections acquired abroad	67	82	84	73	62	60	161	75
India	16	14	20	8	2	10	10	10
Turkey	8	15	3	20	6	2	6	10
Egypt	3	8	9	1	11	15	52	17
Others	40	45	52	44	43	33	93	30
Country of transmission not notified	1	12	9	7	4	6	3	5
Total	73	107	104	88	71	75	223	87

Listeriosis – *Listeria monocytogenes*

The annual incidence of listeriosis (4/1 million population) has not increased in recent years (figure 10). A total of 20 cases were notified in 2002, of which 65% were men and more than half were age 65 or older (68 years, range 41–81. There were no pregnant or newborn listeriosis patients. Serotype 1/2 (13/19) was the most common cause. The other strains belonged to the 4b serotype. In the pulsed field gel analysis, most of the strains (12/19) were sporadic strains.

EHEC – *Escherichia coli*

The number of notified EHEC cases was 17. The number has remained stable since 2000 (an average of 17 cases per year). Approximately 55% of the cases were caused by serogroup O157. Of the non-O157 strains, serogroup O103 was the most common. Most of the infections were acquired domestically.

Figure 10

Listeriosis 1995–2002

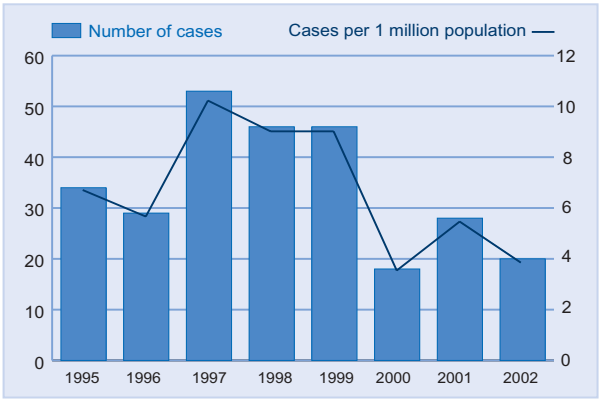
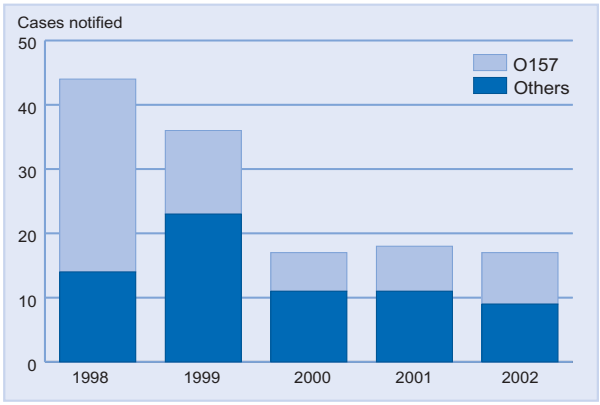


Figure11

EHEC cases 1995–2002



HEPATITIS

Hepatitis A – HAV

In 2002, 393 cases of hepatitis A were notified to the National Infectious Diseases Register (incidence 7.5 / 100,000 population). This was considerably more than in the three previous years, when 48–51 cases were notified (incidence 1.0 / 100,000). The incidence among men (9.9 / 100,000) was higher than among women (5.0 / 100,000). The incidence was highest among 20–29-year-olds, at 14 / 100,000. The reason was an epidemic among injecting drug users, focusing in this age group.

The incidence was highest in the Hospital District of Helsinki and Uusimaa (18.5 / 100,000), with 260 cases. Also in Southern Karelia, Northern Savo and Northern Karelia the incidence was higher than 10 / 100,000. The epidemic started in the Hospital District of Helsinki and Uusimaa. During the first half of the year, 81% of the cases were from this area. At first, almost all cases were injecting drug users or a close contact of an injecting drug user. Later, infections occurred in the general population. Approximately one third of the cases in Helsinki were not related to drug or alcohol abuse.

Later in 2002, several small outbreaks occurred in other parts of the country: in Southern Savo in April–May, in Southern Karelia in June–July, in Northern Karelia in August-September, in Northern Savo starting in August and in Central Finland in December. Most of these cases were injecting drug users.

Vaccination against hepatitis A is recommended for injecting drug users in Finland, but it is not a part of the general vaccination program. In the Helsinki area control of the epidemic was attempted by giving gamma globulin to persons in close contact with the cases. A vaccination campaign was launched in needle exchange points in Helsinki and Vantaa in April. A first vaccine dose was given to more than 1,000 injecting drug users. This risk group has been a traget for vaccination also in other healthcare districts. Approximately 400 alcoholics were vaccinated in Helsinki.

The previous hepatitis A epidemic was in Finland in 1994, when there were almost 500 cases. Discussions are ongoing regarding adding hepatitis A vaccine for injecting drugs users to the general vaccination program.

Hepatitis B – HBV

In 2002, 178 cases of acute HBV hepatitis B were notified. The number was significantly higher than in 2001. Concomitantly, the number of cases occurring in injecting drug users increased compared to 2001. The favourable trend that has continued for several years seems to have ended (figure 12). Eighty percent of cases were born in Finland. In addition, notifications are received on HBs antigen carriers, which are considered cases of chronic hepatitis B. Most of these cases were born outside Finland.

Hepatitis C – HCV

The number of hepatitis C cases continues to decrease; there were more than a hundred fewer cases notified than in the preceding year. The infection is still closely related to injecting drug use. Even though the risk of infection grows rapidly with prolonged use of injecting drugs, the proportion of patients aged 15–19 years was relatively larger than in previous years (figure 13). There were substantial differences among healthcare districts. In Helsinki, the incidence was 46.5 / 100,000 but in Eastern Savo 3.0. This may reflect, for example, differences in drug use, but also inefficiency of case detectiton.

Table 7

Age distribution of acute hepatitis B and of all hepatitis C cases in 2002

	Acute hepatitis B		All hepatitis C	
Age	Male	Female	Male	Female
0 .. 4	-	-	15	19
5 .. 9	-	-	-	-
10 .. 14	1	-	-	-
15 .. 19	12	11	102	91
20 .. 24	18	10	240	101
25 .. 29	16	7	180	62
30 .. 34	16	4	113	50
35 .. 39	12	4	97	43
40 .. 44	9	7	57	30
45 .. 49	8	2	51	27
50 .. 54	5	2	31	13
55 .. 59	7	1	12	1
60 .. 64	1	1	8	2
65 .. 69	1	2	4	5
70 .. 74	3	2	2	3
75 ..	8	7	9	9
Total	117	60	868	419

Figure 12

Acute hepatitis B and all hepatitis C cases in 1995–2002

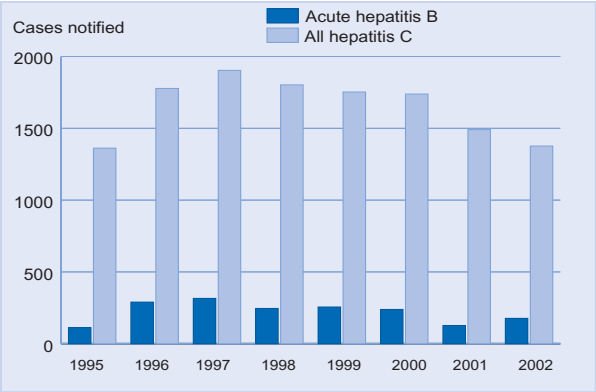


Figure 13

Hepatitis C cases aged 15–19 in 1995–2002

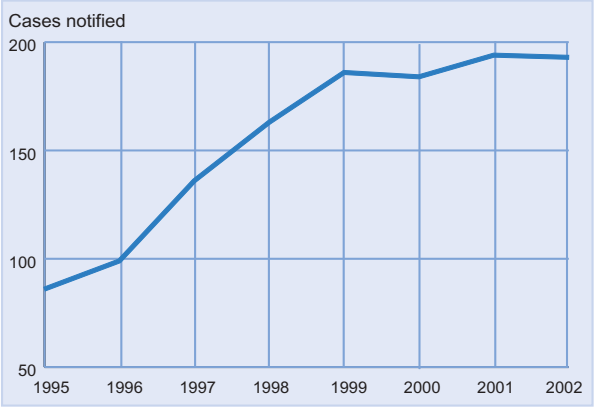


Table 8

Method of transmission of acute hepatitis B and all hepatitis C cases in 2002

Method of transmission	Acute hepatitis B	All hepatitis C
Injecting drug use	43	668
Sex	37	45
Perinatal	1	3
Blood products*	-	18
Not known/ not notified	96	642

*Infections have been acquired outside Finland or before 1994.

SEXUALLY TRANSMITTED DISEASES

Chlamydia – *Chlamydia trachomatis*

The number of chlamydia cases continued to increase in 2002. Laboratories notified a total of 13,661 new cases, which is 13% more than in 2001. Sixty-two percent were women. Of all notified cases of chlamydia, 37% of women and 15% of men were in the age group below 20 years . The incidence was highest in the healthcare districts of Lapland (388/100,000) and Western Bothnia (378/100,000).

Gonorrhea – *Neisseria gonorrhoeae*

The number of gonorrhea cases was almost the same as in the previous year, altogether 235 cases. Seventy-seven percent of the cases were men. Eighty-one percent of the notifications contained information on the country of transmission. Only four women had been infected with gonorrhea abroad, while fifty-four percent of infections in men were of foreign origin. Most of the notified infections originated from Thailand (37%) and Russia (35%).

Figure 14

Sexually transmitted diseases in Finland 1990–2002

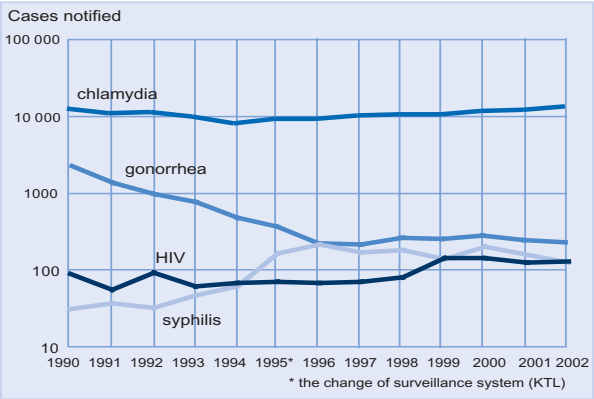


Table 9

Gonorrhea, syphilis and chlamydia cases by age and sex in 2002

	Gonorrhea		Syphilis		Chlamydia	
Age	Male	Female	Male	Female	Male	Female
0 .. 4	-	-	2	2	3	6
5 .. 9	-	-	-	-	-	-
10 .. 14	1	-	1	-	3	61
15 .. 19	7	7	4	2	793	3073
20 .. 24	22	16	2	9	2239	3296
25 .. 29	32	8	3	8	1181	1175
30 .. 34	28	8	12	3	482	391
35 .. 39	32	11	9	6	250	244
40 .. 44	23	2	7	1	118	105
45 .. 49	18	-	4	2	57	57
50 .. 54	9	-	3	-	38	35
55 .. 59	7	-	7	2	15	12
60 .. 64	1	1	5	2	13	4
65 .. 69	2	-	-	-	2	5
70 .. 74	-	-	1	3	2	-
75 ..	-	-	12	16	1	-
Total	182	53	72	56	5197	8464

In Päijät-Häme healthcare district (incidence 15/100,000) there was a small outbreak in 2002 caused by a ciprofloxacin-resistant gonococcal strain originating from Thailand. Most gonococcal infections originating from the Far East are nowadays resistant and they should be treated primarily with ceftriaxone, or the susceptibility should be confirmed by culture.

Syphilis - *Treponema pallidum*

The number of syphilis cases notified was lower than in previous years. There were a total of 126 cases, of which 56% in men. In thirty-one percent of the cases the patient was older than 60 years, some of them obvious serological scars. One child adopted from abroad had congenital syphilis. The highest number of cases cases were detected in the healthcare district of Northern Karelia (9.9/100,000). The country of transmission was notified only in about half of the cases. Ten percent of the women's infections were of foreign origin, 9 of these from Russia. Sixty-five percent of infections in men were of foreign origin. Approximately half of these were from Russia.

HIV and AIDS

The number of HIV cases associated with the epidemic among injecting drug users has decreased for three consecutive years. At the same time, in anonymous tests at health counseling services targeting injecting drug users, HIV prevalence has decreased from three percent in 1998 to one percent in 2002. However, injecting drug users still have more HIV infections than before the epidemic years of 1998 to 1999.

There were more notified cases of sexually transmitted HIV than in 2002. The change has been especially significant in HIV transmitted between males. After decreasing steadily until 1999, the number of cases has considerably increased in recent years. The same phenomenon has been observed in other Western European and Northern American countries, but the reasons for this have not been found yet. Transmission through sex between males was notified in 36 males in 2002. Eight of them were aged below 30 and most were between 30 to 40 years old. Fourteen cases were of domestic and 8 of foreign origin. The country of transmission was not known or notified in 14 cases.

HIV infection from heterosexual transmission was notified in 20 males and 20 females. As in previous years, 85% of infections in men were of foreign origin. Ten of these 17 infections were transmitted in Thailand. In two male cases the country of origin was not known. Information on the origin of infections in women is missing more frequently. In one third of female cases with heterosexual transmission, the place of infection was not notified. Exceptionally, the majority of infections in women were of foreign origin in 2002. In previous years domestic infections have been more common in women.

Of the men whose infection had been transmitted heterosexually, only 4 were under 30, but the majority of women belonged to that age group (11 women). On the other

hand, 45% of the men were over 40.

An HIV infection transmitted from the mother was detected in 3 children born abroad.

In 2002, 20 persons infected with HIV developed AIDS. In 14 cases the HIV infection was detected late, less than one year before the patient developed AIDS. Nine of them were Finnish.

Figure 15

HIV infections notified in Finland by mode of transmission 1995–2002 (sex and injecting drug use)

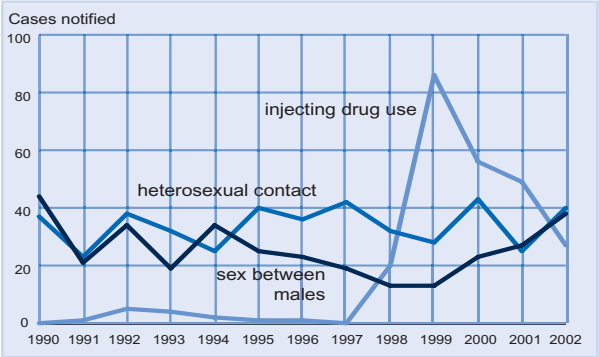


Table 10

HIV infections in Finland 1990–2002

	Cases notified			Method of transmission					
Year	Total	Female	Foreigner	Sex between males	Hetero-sex	Blood products*	Injecting drug use	Perinatal	Not known
1990	89	13	26	44	37	1	-	-	7
1991	57	10	23	21	23	-	1	-	12
1992	93	21	29	34	38	-	5	-	16
1993	62	16	16	19	32	2	4	-	5
1994	69	14	14	34	25	1	2	1	6
1995	72	28	22	25	40	-	1	-	6
1996	69	20	29	23	36	-	1	-	9
1997	71	24	19	19	42	-	0	1	8
1998	81	32	22	13	32	-	20	-	16
1999	148	39	18	13	28	-	86	1	14
2000	145	51	39	23	43	1	56	2	18
2001	128	33	31	27	25	-	49	-	26
2002	129	37	37	36	40	-	27	3	23

*the latest infection transmitted by blood products in Finland occurred in 1985.

Table 11

Deaths among HIV infected persons 1990–2002

	All deaths			Method of transmission				Deaths among AIDS patients	
Year	Total	Female	Foreigner	Sex between males	Hetero-sex	Injecting drug use	Other or not known	Total	Proportion of all (%)
1990	20	2	-	16	2	-	2	17	85
1991	30	-	3	22	4	-	4	22	73
1992	24	1	3	16	1	2	5	21	87
1993	31	4	1	18	8	2	3	28	90
1994	28	5	4	19	7	2	-	25	89
1995	40	4	4	23	14	2	1	32	80
1996	31	3	2	15	12	3	1	28	90
1997	9	1	2	5	3	-	1	7	77
1998	10	1	1	5	3	1	1	8	80
1999	17	4	2	4	3	6	4	7	41
2000	20	4	3	7	9	3	1	11	55
2001	13	4	2	4	3	4	2	5	38
2002	4	-	-	-	-	4	-	1	25

TUBERCULOSIS

Tuberculosis – *Mycobacterium tuberculosis* complex

Since 1995 the registered cases include all cases of tuberculosis verified by culture, as notified by the laboratories. In addition, cases notified by a physician only are included if the diagnosis is confirmed by histology or a case of pulmonary tuberculosis is confirmed by positive sputum staining for tuberculosis bacilli.

In 2002 there were 473 tuberculosis cases, 4% less than in 2001 (494 cases). The figure in 2002 was the lowest since the National Infectious Diseases Register started operating in 1995. The number of cases confirmed by culture in 2002 was 389, 5% lower than in the preceding year, when it was 409. The incidence of tuberculosis was 9.1 cases per 100,000 population.

There were 295 cases of pulmonary tuberculosis (incidence 5.7 per 100,000) and 178 cases of non-pulmonary tuberculosis. Among the pulmonary cases, a positive sputum stain for tuberculosis was notified in 46%. In 12% of the pulmonary cases no sputum stain for tuberculosis bacilli was performed, or this information was missing.

Of all the cases, 6 (1%) were notified in under 15-year-olds, 26 (5%) in 15–29-year-olds, 33 (7%) in 30–44-year-olds, 94 (20%) in 45-to-59-year-olds, 143 (30%) in 60–74-year-olds and 169 (36%) in those 75 and older.

Of all cases, 356 (75%) were based on notifications sent by both a physician and a laboratory, 35 (7%) on laboratory notification only, and 82 (17%) on a physician's notification only. As in previous years, cases where a laboratory had notified a finding of atypical mycobacteria were removed on the basis of unique person identifier linkage from the tuberculosis notifications made by physicians only.

In 2002 tuberculosis was notified in 48 (10% of all cases) persons born abroad or with a foreign nationality. Forty-two of them (88%)

Table 12

The age and sex distribution of tuberculosis cases 2002

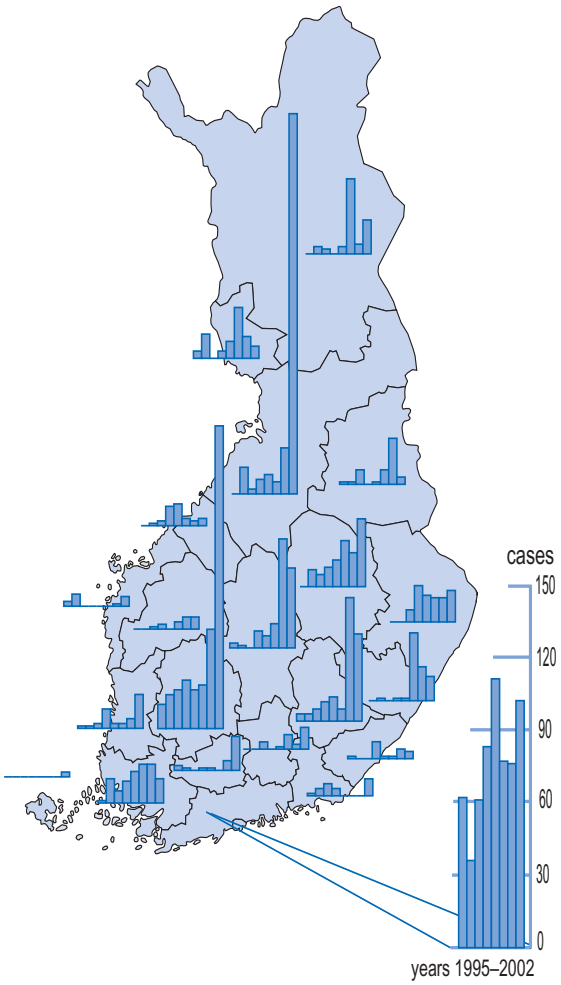
	Pulmonary tbc		Other tbc		Total
Age	Male	Female	Male	Female	
0 .. 4	1	-	-	-	1
5 .. 9	-	1	1	-	2
10 .. 14	1	1	1	-	3
15 .. 19	-	2	2	2	6
20 .. 24	-	3	1	-	4
25 .. 29	6	4	3	3	16
30 .. 34	5	3	1	4	13
35 .. 39	4	3	4	-	11
40 .. 44	6	2	2	1	11
45 .. 49	13	3	3	4	23
50 .. 54	19	4	3	4	30
55 .. 59	17	9	3	12	41
60 .. 64	14	13	4	6	37
65 .. 69	20	5	10	8	43
70 .. 74	18	15	9	21	63
75 ..	53	50	25	41	169
Total	177	118	72	106	473

were under 50 years old. Of these cases 23 were pulmonary and 25 non-pulmonary.

Mycobacterium tuberculosis strains still have a good susceptibility situation. In 2002 three multi-resistant *M. tuberculosis* strains were detected (resistant at least to isoniazide and rifampicin).

Figure 16

MRSA cases in Finland by health care district 1995–2002



RESISTANT BACTERIA

Methicillin-resistant *Staphylococcus aureus* – MRSA

The molecular epidemiology of methicillin-resistant Staphylococcus aureus (MRSA) changes constantly. In recent years, there have been two significant changes internationally in MRSA treatment and prevention: the development of high-grade vancomycin resistance, and the appearance of MRSA outside acute care hospitals. The increase in MRSA findings and the deteriorating MRSA situation in the health care setting outside hospitals are an increasing concern in Finland, too. National MRSA prevention guidelinde are being revised to better meet ne needs also outside acute care hospitals.

MRSA surveillance in Finland is based on notifications of MRSA findings sent by clinical microbiology laboratories to the National Infectious Diseases Register maintained by the National Public Health Institute. In addition, the laboratories send MRSA strains for confirmation and typing at the Laboratory for Hospital Infection of the National Public Health Institute. Susceptibility to vancomycin is also defined for each MRSA strain (Kansanterveys 9/2002).

Penicillin-resistant pneumococcus

The number of pneumococcal isolates with resistance (PRP) or reduced susceptibility to penicillin (PIP) in blood cultures has in-

creased somewhat during 1995–2002, but findings in cerebrospinal fluid remain sporadic (table 14). Laboratories notified a total of 75 PRP and 271 PIP findings in 2002. Of all PRP and PIP findings, 56% were made in men and more than half in under-3-year-olds. The median age was 2 and the range 0–101 years. The majority of the PRP and PIP findings originated from non-invasive samples (91%, 315 out of 346).

Figure 17

MRSA notifications 1995–2002

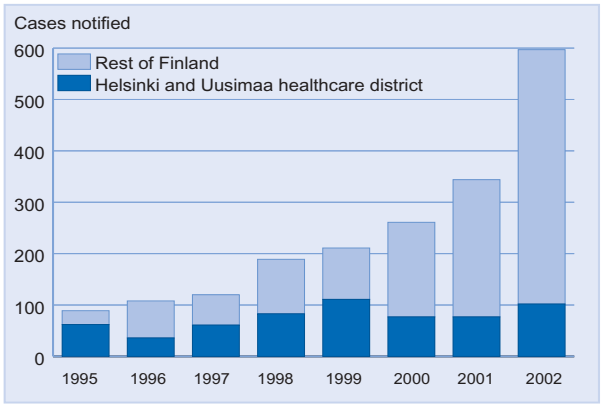


Table 13

MRSA findings and their proportion of *Staphylococcus aureus* blood culture findings in 1995–2002

Year	All MRSA-findings	*S. aureus* -findings from blood	MRSA-findings in blood and their proportion of all *S. aureus* findings from blood (%)
1995	89	627	2 (0,3)
1996	108	667	0 (0)
1997	120	746	4 (0,5)
1998	189	717	5 (0,7)
1999	211	812	8 (1,0)
2000	261	849	4 (0,5)
2001	340	887	4 (0,5)
2002	597	984	8 (0,8)
Total	1915	6289	35 (0,6)

Table 14

PRP and PIP findings and their proportion of invasive *Streptococcus pneumoniae* findings in 1995–2002.

Year	PIP/PRP-findings*	*S. pneumoniae* -findings		PIP/PRP-findings		Reduced susceptibility to penicilllin of *S. pneumoniae* from blood (%)
		Blood	CSF	Blood	CSF	
1995	43	478	34	4	0	0,8
1996	93	524	33	4	0	0,7
1997	146	577	29	6	0	1,0
1998	142/62	543	35	10/4	1/0	0,7
1999	171/60	548	33	11/4	1/0	0,7
2000	236/64	592	25	16/5	1/0	0,8
2001	241/67	645	13	21/6	0/1	1,1
2002	271/75	593	19	22/7	2/2	1,5
Total	1671	4500	221	80/40	5/3	0,9

*In 1995–1997 only penicillin-resistant (PRP) pneumococcal findings were notified. Starting in 1998 also pneumococcal findings with reduced susceptibility to penicillin (PIP) have been notified.

OTHER BACTERIAL INFECTIONS

Meningococcus – *Neisseria meningitidis*

Altogether 49 cases of invasive meningococcal disease cases, (incidence 0.9 cases / 100,000 population) in which the bacterium was detected in blood or cerebrospinal fluid, were notified. This corresponds to previous years. The serogroup distribution remains unchanged. The rare W135 serogroup, previously associated with travel in Saudi Arabia, was detected in one case also in 2002. In this case there was no association to foreign travel. No temporal or geographic clusters were detected. Eleven cases (22%) were younger than 5; ten of them were boys. Nine cases (18%) were between 15 and 19 years of age. The remaining cases were distributed evenly among other age groups.

Hib – *Haemophilus influenzae* type b

There were 26 cases of invasive *Haemophilus influenzae* infection, which is less than in previous years. Four cases (15%) were caused by *Haemophilus influenzae* type b. All Hib cases occurred in patients of age 45 and older. This was the second year in a row that no invasive Hib cases were notified among those under 15 in Finland.

Table 15

Cases of invasive meningococcal infection by serogroup in 1995–2002

Serogroup	1995	1996	1997	1998	1999	2000	2001	2002
A	-	-	-	-	-	-	-	-
B	50	59	36	44	35	30	34	36
C	22	15	5	7	9	11	9	6
Y	-	3	3	2	8	2	4	4
W135	-	-	-	-	1	3	1	1
Not known	6	2	2	1	4	2	3	2
Total	78	79	46	54	57	48	51	49

OTHER VIRAL INFECTIONS

Puumalavirus

2002 was a record-breaking year for Puumalavirus infections. Altogether 2,603 cases were notified, which is more than ever before during the history of the National Infectious Diseases Register (1995–2002).

The occurrence of Puumalavirus infections follows the 3-year cycle of its natural reservoir, the bank vole. During two years there is a high number of cases, followed by one year of lower frequency.

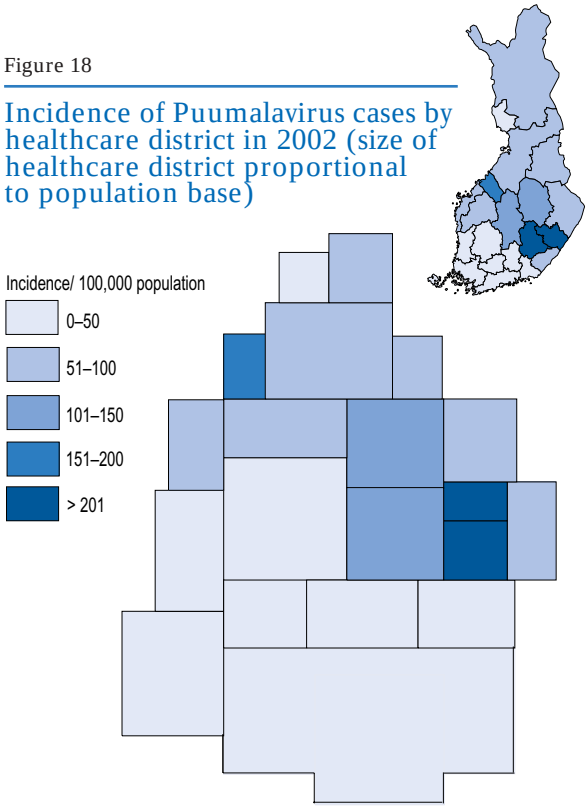
Year 2002 was the second year of high incidence (1,057 cases in 2001), which means that the number of cases should be lower in 2003. The majority of the bank vole population in Southern Finland south of the line from Uusikaarlepyy to Nurmes has been in the same stage of the cycle. Bank vole populations are expected to be large in the province of Oulu and in Northern Finland also in 2003.

In 2002 the number of Puumalavirus cases peaked as winter approached (October to December) and voles started to seek warmth in buildings. Most cases were men, but the percentage of infected women grew slightly. The overall male: female ratio was 1.58:1; in 2001 it was 1.8:1. Half of the male cases and almost half of the female cases (44%) were aged between 35 and 54.

The incidence in Finland was 50/100,000 population, which is more than double compared to the preceding year (20/100,000). The incidence was highest (more than 150/100,000) in the Eastern and Southern Savo and Central Bothnia healthcare districts.

Figure 18

Incidence of Puumalavirus cases by healthcare district in 2002 (size of healthcare district proportional to population base)



In Kymenlaakso and Varsinais-Suomi less than 10 cases per 100,000 population were notified.

Tick-borne encephalitis – TBE

The number or tick-borne encephalitis cases was again higher than the long-term average. The risk of acquiring the disease is still greatest in Åland: 26 of the notified 38 cases occurred there, with an incidence of 100/100,000 population, one of highest ever reported anywhere. Climate change may contribute to the disease becoming more common. Up to 40% of the patients suffer from long-term and serious sequelae, causing a significant health burden.

Figure 19

Tick-borne encephalitis cases notified in Åland and the rest of Finland in 1995–2002.

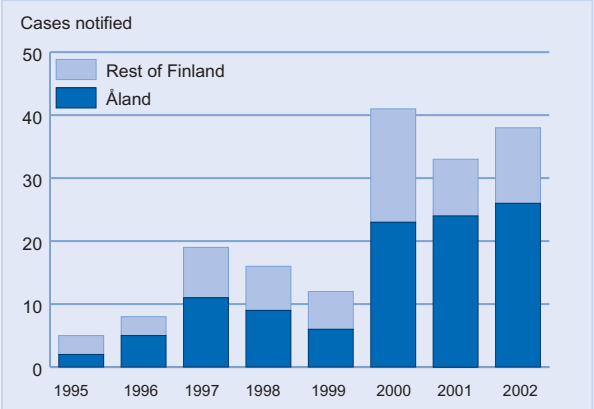
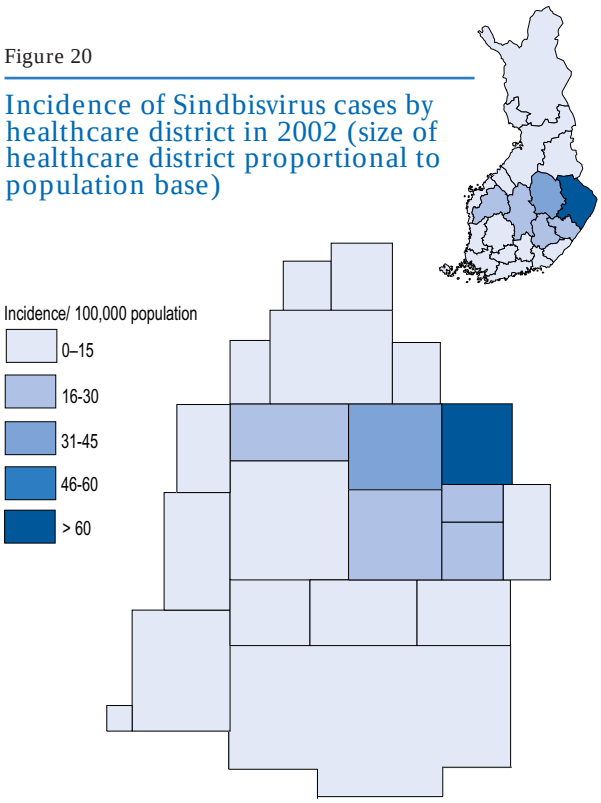


Figure 20

Incidence of Sindbisvirus cases by healthcare district in 2002 (size of healthcare district proportional to population base)



Pogosta disease – Sindbisvirus

Cases of Pogosta disease occur in August and September. The first epidemic in Finland occurred in 1974. Since then, an epidemic has broken out every 7th year. The reason for the 7-year cycle is not known. There may be an association to local ecological factors, such as cyclical changes in the forest fowl population. A total of 1,310 cases were notified in 1995. Since then there have been six years with small numbers of cases. A new epidemic was predicted to take place in the end of summer 2002, which is exactly what happened. A total of 597 cases were notified to the National Infectious Diseases Register, which is considerably less than in 1995.

Pogosta disease cases were notified from everywhere in Finland except Åland. The main areas were Eastern and Central Finland. The incidence was highest in the Northern Karelia healthcare district (81/100,000 population). The incidence in Finland as a whole was 11.5/100,000. The epidemic was most intense during weeks 32–41. Most cases (102) were notified during week 36.

In 2002 most cases occurred in women. The female:male ratio was 1.3:1. As in recent years, especially women between 45 to 65 years fell ill. The incidence in this age group was almost double for women compared to men (64.1/100,000 for women, 36.8/100,000 for men). This may be related to outdoor activities in early autumn, such as wandering in the forest or picking berries.

Malaria

Thirty-one cases of malaria were detected in 2002. Two patients had a double infection. In 21 cases the infection was caused by *Plasmodium falciparum*. There were 6 *P. vivax* infections, 4 *P. ovale* infections and 1 *P. malariae* infection. In one case the species could not be identified.

Most of the infections (26 cases, 88%) and all the falciparum cases were acquired in Africa. Sixteen were acquired in West Africa, 9 in East Africa, 1 in Central or South Africa. Four of the *P. vivax* infections were acquired in Asia, 1 in Africa and 1 in South America. All 4 *P. ovale* infections originated in Africa. One *P. malariae* infection was from Africa, as was the case with an unidentified species.

Sixteen cases were Finnish and 15 foreigners. Sixteen cases (52%) had been on a short trip (less than six months) to areas where malaria is endemic. Six cases (19%) were immigrants from endemic areas who were visiting their former home. Six cases (19%) were from areas where malaria is endemic and fell ill shortly after moving to Finland. Three (10%) of the cases were Finns who had lived a long time in areas endemic for malaria.

Most of the cases (20 patients, 65%) had not taken malaria prophylaxis or had taken it irregularly.

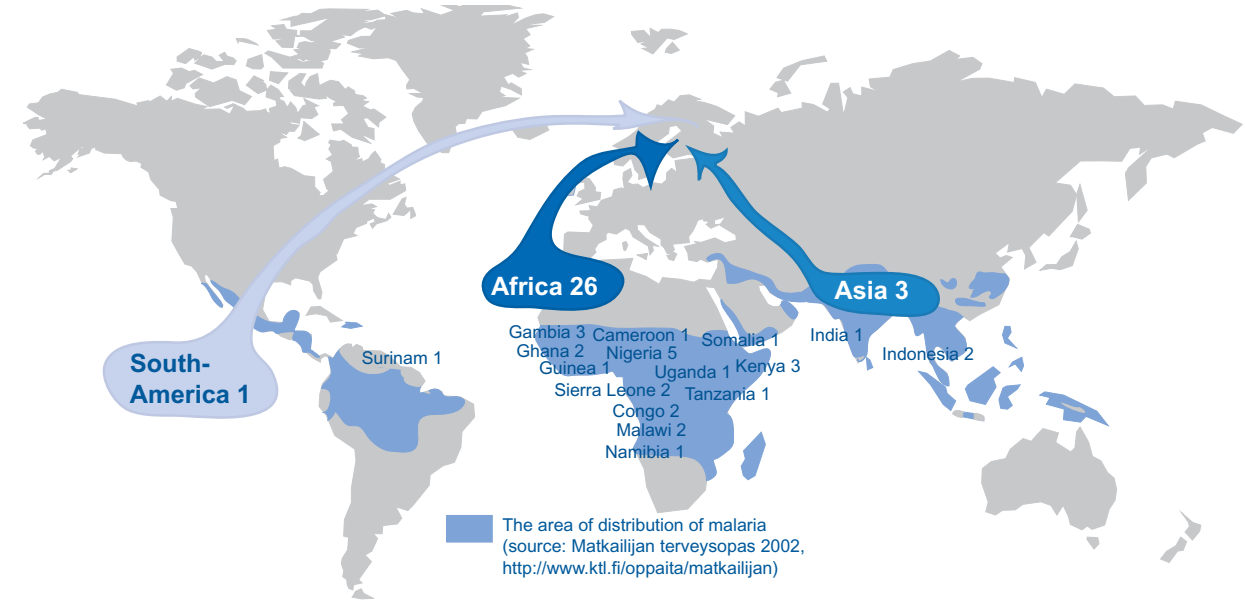
Eleven persons fell ill with malaria in spite of regular drug prophylaxis. Two had a *P. vivax* and 2 a *P. ovale* infection. Seven cases (22% of all cases) had clinically drug-resistant falciparum malaria. All of these cases originated in Africa, and the patients had used chloroquine, proguanil or their combination.

The annual number of malaria cases and the countries of origin have remained relatively constant over the past few years in Finland. A new feature is that 20% of the patients acquired falciparum malaria in Africa because they had been prescribed inappropriate prophylaxis.

Figure 21

The countries of transmission of the 31 malaria cases notified in Finland 2002.

The country of transmission in one malaria case is not known.



FINDINGS IN BLOOD AND CEREBROSPINAL FLUID

Table 16

Blood culture findings in 1995–2002, children (0–14 years)

Microbe/ microbe group	1995	1996	1997	1998	1999	2000	2001	2002
Bacteria								
Staphylococcus, other than aureus	114	92	102	102	141	141	144	173
Streptococcus pneumoniae	92	98	88	77	77	98	91	99
Staphylococcus aureus	71	57	76	81	85	59	52	81
Escherichia coli	63	49	59	61	53	63	44	52
Streptococcus agalactiae	46	52	43	48	42	39	41	46
Streptococcus viridans group, S. milleri and S. bovis	35	35	36	32	33	27	34	24
Enterococcus ssp.	21	19	12	14	12	10	11	21
Klebsiella ssp.	9	13	15	11	14	11	10	13
Acinetobacter ssp.	7	5	4	6	7	6	5	12
Streptococcus pyogenes	4	8	3	11	13	10	11	11
Neisseria meningitidis	6	17	10	14	16	17	12	10
Enterobacter ssp.	13	10	10	10	12	8	6	7
Pseudomonas ssp.	4	8	10	11	2	7	12	6
Bacillus	5	6	5	2	4	10	4	5
Fusobacterium ssp.	1	6	4	2	5	4	1	3
Clostridium ssp.	4	1	2	4	1	1	1	2
Diphteroids and propionibacteria	2	-	4	4	6	4	2	2
Salmonella ssp.	3	2	1	3	7	1	1	2
Streptococcus, other betahemolytic (C and G)	3	-	1	6	1	2	1	1
Stenotrophomonas maltophilia	1	-	6	6	2	2	2	1
Haemophilus ssp.	2	6	3	5	6	4	5	1
Bacteroides ssp.	1	2	1	3	2	5	2	1
Listeria monocytogenes	1	2	2	2	-	1	1	-
Yersinia enterocolitica and pseudotuberculosis	2	-	-	-	-	-	-	-
Campylobacter ssp.	-	-	-	-	2	2	1	-
Capnocytophaga canimorsus	-	-	-	-	-	-	-	-
Other enterobacteria	6	4	5	4	8	10	3	8
Other gram-positive bacilli	1	2	2	2	3	2	3	5
Other gram-positive cocci	4	7	5	7	15	12	9	7
Other gram-negative anaerobes	-	1	-	-	1	-	-	-
Other gram-negative bacteria	1	3	5	7	3	3	1	5
Other indefinable bacteria	1	2	-	1	1	-	2	3
Bacteria, total	**523**	**507**	**514**	**536**	**574**	**559**	**512**	**601**
Fungi								
Candida albicans	-	-	-	1	-	-	-	-
Other yeasts	11	4	3	3	13	7	4	12
Other fungi	4	3	1	2	9	10	8	8
Fungi, total	**15**	**7**	**4**	**6**	**22**	**17**	**12**	**20**
Total	**538**	**514**	**518**	**542**	**596**	**576**	**524**	**621**

Table 17

Blood culture findings in 1995–2002, adults(≥15 years)

Microbe/ Microbe group	1995	1996	1997	1998	1999	2000	2001	2002
Bacteria								
Escherichia coli	1264	1374	1496	1462	1559	1565	1791	1794
Staphylococcus aureus	556	610	671	637	727	793	835	904
Staphylococcus, other than aureus	518	576	549	573	653	785	809	839
Streptococcus pneumoniae	386	426	489	466	473	495	554	494
Enterococcus ssp.	226	250	261	280	286	321	388	380
Klebsiella ssp.	235	248	274	283	281	316	355	364
Streptococcus viridans group, S. milleri and S. bovis	218	235	268	267	293	305	306	294
Pseudomonas ssp.	225	197	197	180	198	209	209	229
Streptococcus, other betahemolytic (C and G)	91	125	151	132	161	146	171	178
Bacteroides ssp.	137	132	170	153	184	174	179	165
Enterobacter ssp.	94	130	152	159	137	154	189	140
Streptococcus pyogenes	54	52	77	94	103	106	88	139
Streptococcus agalactiae	65	82	97	101	111	116	137	127
Clostridium ssp.	79	66	83	68	68	77	81	65
Diphteroids and propionibacteria	29	49	54	76	63	89	66	61
Fusobacterium ssp.	23	22	23	34	28	23	32	31
Acinetobacter ssp.	28	33	24	18	24	31	27	30
Haemophilus ssp.	10	19	19	29	30	32	49	30
Bacillus	14	17	13	18	15	36	37	29
Neisseria meningitidis	27	30	10	13	22	18	23	24
Listeria monocytogenes	23	23	41	38	37	16	22	20
Salmonella ssp.	46	28	23	31	49	25	42	20
Stenotrophomonas maltophilia	20	27	18	8	12	15	23	17
Campylobacter ssp.	12	14	10	11	10	14	17	10
Capnocytophaga canimorsus	4	5	10	3	8	6	7	7
Yersinia enterocolitica and pseudotuberculosis	3	8	4	9	8	4	6	4
Mycobacteria	15	11	1	8	-	6	6	2
Other enterobacteria	130	130	149	137	140	185	204	181
Other gram-positive bacilli	26	23	22	29	28	39	28	37
Other gram-positive cocci	60	58	44	62	58	62	57	73
Other gram-negative anaerobes	-	2	3	8	9	5	3	7
Other gram-negative bacteria	42	46	39	46	48	45	41	38
Other indefinable bacteria	1	2	2	2	2	3	2	2
Bacteria, total	**4661**	**5050**	**5444**	**5435**	**5825**	**6216**	**6784**	**6735**
Fungi								
Candida albicans	-	-	1	1	-	-	1	1
Other yeasts	46	63	63	59	70	82	92	68
Other fungi	28	17	23	31	35	42	49	55
Fungi, total	**74**	**80**	**87**	**91**	**105**	**124**	**142**	**124**
Total	**4735**	**5130**	**5531**	**5526**	**5930**	**6340**	**6926**	**6859**

Table 18

Cerebrospinal fluid culture findings 1995–2002, children (0–14 years)

Microbe/ microbe group	1995	1996	1997	1998	1999	2000	2001	2002
Bacteria								
Staphylococcus, other than aureus	2	8	6	8	14	12	5	18
Neisseria meningitidis	10	9	12	16	11	11	9	8
Streptococcus agalactiae	2	8	2	9	5	4	3	5
Streptococcus pneumoniae	12	8	4	7	11	3	3	4
Staphylococcus aureus	3	2	7	3	2	2	7	2
Acinetobacter ssp.	-	-	2	-	1	-	-	2
Streptococcus pyogenes	-	-	1	-	1	-	1	1
Streptococcus, other betahemolytic (C and G)	-	-	-	-	-	-	-	1
Enterococcus ssp.	-	1	4	1	2	1	-	1
Escherichia coli	-	1	2	3	1	1	3	1
Klebsiella ssp.	-	-	-	-	-	1	-	1
Streptococcus viridans group, S. milleri and S. bovis	4	-	1	2	-	2	3	-
Clostridium ssp.	-	-	-	-	-	-	-	-
Listeria monocytogenes	-	1	-	1	-	-	-	-
Mycobacteria	-	-	-	-	-	-	-	-
Bacillus	-	-	-	-	-	1	-	-
Diphteroids ja propionibacteria	-	-	-	-	-	1	-	-
Salmonella ssp.	-	-	-	-	1	-	-	-
Pseudomonas ssp.	-	-	-	1	-	-	-	-
Stenotrophomonas maltophilia	-	1	-	-	-	-	-	-
Haemophilus ssp.	3	1	-	3	2	2	3	-
Bacteroides ssp.	-	-	-	-	1	-	-	-
Other enterobacteria	-	-	1	2	-	-	-	1
Other gram-positive cocci	-	2	2	-	1	-	3	4
Other gram-negative bacteria	-	1	-	-	-	-	-	-
Other indefinable bacteria	-	-	-	-	-	-	1	-
Bacteria, total	**36**	**43**	**44**	**56**	**53**	**41**	**41**	**49**
Fungi								
Candida albicans	-	-	-	-	-	1	-	2
Fungi, total	**-**	**-**	**-**	**-**	**-**	**1**	**-**	**2**
Total	**36**	**43**	**44**	**56**	**53**	**42**	**41**	**51**

Table 19

Cerebrospinal fluid culture findings 1995–2002, adults (≥15 years)

Microbe/ microbe group	1995	1996	1997	1998	1999	2000	2001	2002
Bacteria								
Staphylococcus, other than aureus	7	15	13	31	36	34	53	55
Neisseria meningitidis	35	39	21	20	19	13	13	19
Streptococcus pneumoniae	22	25	25	28	22	22	28	15
Diphteroids and propionibacteria	-	1	1	8	3	5	7	10
Staphylococcus aureus	1	13	9	14	15	13	11	8
Streptococcus viridans group, S. milleri and S. bovis	1	5	3	6	4	5	4	8
Bacillus	-	-	1	2	1	3	4	8
Enterococci ssp.	1	1	4	5	4	4	5	7
Pseudomonas ssp.	-	-	4	3	5	5	7	5
Escherichia coli	2	1	4	1	4	3	1	4
Acinetobacter ssp.	-	-	3	2	1	-	2	4
Streptococcus pyogenes	-	-	-	-	-	-	-	3
Mycobacteria	2	1	1	1	-	4	1	3
Enterobacter ssp.	1	-	2	2	1	1	4	3
Streptococcus, other betahemolytic (C and G)	-	4	-	-	1	-	2	2
Listeria monocytogenes	9	4	7	10	3	4	4	2
Klebsiella ssp.	-	2	4	1	2	2	2	2
Haemophilus ssp.	-	2	5	3	3	3	4	2
Streptococcus agalactiae	1	4	-	-	1	4	2	1
Clostridium ssp.	-	-	-	-	-	-	-	-
Salmonella ssp.	-	-	-	2	-	-	1	-
Yersinia enterocolitica and pseudotuberculosis	-	-	-	-	1	-	-	-
Stenotrophomonas maltophilia	1	-	-	-	-	-	-	-
Campylobacter ssp.	-	-	-	1	-	-	-	-
Capnocytophaga canimorsus	-	1	-	1	-	-	-	-
Bacteroides ssp.	-	-	-	-	1	-	-	-
Fusobacterium ssp.	-	1	-	-	1	1	-	-
Other enterobacteria	-	-	1	-	1	2	3	2
Other gram-positive bacilli	2	1	-	-	-	-	-	1
Other gram-positive cocci	-	2	1	2	2	1	1	1
Other gram-negative anaerobes	-	-	-	-	-	-	-	-
Other gram-negative bacteria	-	1	-	-	-	1	2	1
Other indefinable bacteria	-	-	-	1	-	1	-	-
Bacteria, total	**85**	**123**	**109**	**144**	**131**	**131**	**161**	**166**
Fungi								
Candida albicans	-	-	-	-	-	2	1	2
Other yeasts	-	1	-	1	2	2	-	1
Other fungi	1	1	-	-	2	1	2	3
Fungi, total	**1**	**2**	**-**	**1**	**4**	**5**	**3**	**6**
Total	**86**	**125**	**109**	**145**	**135**	**136**	**164**	**172**

TABLES IN ANNEX

Table in Annex 1

Cases notified to the Infectious Disease Register by month in 2002

Notifications by physicians and laboratories have been combined (*) for category 1 and 2 infections. Data for other microbes is based on laboratory notifications only.

	Total	January	February	March	April	May	June	July	Agust	September	October	November	December
Respiratory pathogens													
Adenovirus	**775**	46	122	90	43	37	39	44	57	70	68	81	78
Bordetella pertussis	**581**	22	16	22	24	31	25	48	74	74	98	69	78
Chlamydia pneumoniae	**267**	19	10	12	17	19	14	12	11	30	49	45	29
Influenza A virus	**1381**	31	384	631	294	31	3	1	1	1	1	1	2
Influenza B virus	**177**	4	23	42	52	28	6	2	1	1	-	3	15
Influenza,non-typed	**94**	8	25	48	10	-	-	-	-	-	-	1	2
Legionella*	**18**	-	1	-	2	2	3	2	1	4	2	1	-
Mycoplasma pneumoniae	**630**	95	81	65	45	39	24	33	36	63	65	51	33
Parainfluenza virus	**352**	22	30	32	32	15	15	5	11	8	31	75	76
Respiratory syncytial virus (RSV)	**1690**	872	511	179	46	19	6	2	1	3	4	18	29
Gastrointestinal pathogens													
Campylobacter	**3738**	247	207	264	239	212	297	770	584	293	247	222	156
Cryptosporidium	**18**	3	1	1	2	2	1	1	4	1	-	1	1
Entamoeba histolytica	**36**	5	1	6	6	2	2	4	1	2	4	2	1
Giardia lamblia	**264**	18	17	15	29	20	24	21	30	26	25	19	20
Infectio EHEC*	**17**	-	-	1	-	1	4	4	3	1	-	2	1
Calicivirus	**836**	38	26	43	63	92	34	8	19	39	70	207	197
Rotavirus	**1549**	130	192	246	308	229	167	45	16	14	29	54	119
Salmonella Paratyphi*	**1**	-	-	-	-	-	1	-	-	-	-	-	-
Salmonella Typhi*	**3**	1	-	-	-	-	1	-	-	-	1	-	-
Salmonella, other	**2357**	200	135	164	164	133	133	309	329	251	253	145	141
Shigella*	**87**	8	1	10	7	3	6	9	7	8	7	18	3
Yersinia	**695**	53	45	54	72	77	62	57	100	56	40	50	29
Hepatitis pathogens													
Hepatitis A virus*	**393**	17	15	25	36	40	26	34	45	43	48	27	37
Hepatitis B virus, acute*	**177**	15	10	11	20	21	23	19	13	15	11	14	5
Hepatitis B virus, chronic*	**245**	12	13	26	22	30	17	20	31	19	24	18	13
Hepatitis C virus*	**1373**	126	122	123	108	134	104	100	119	109	137	102	89
Hepatitis D virus	**1**	-	-	-	-	-	-	-	-	-	-	1	-
Hepatitis E virus	**3**	1	-	-	-	1	-	-	-	-	1	-	-
STD-pathogens													
Chlamydia trachomatis	**13661**	1299	1105	977	1104	1266	952	1159	1293	1190	1293	1089	934
HIV*	**131**	13	11	10	11	12	12	12	8	7	15	11	9
Neisseria gonorrhoeae*	**235**	20	22	18	16	14	19	22	26	21	18	22	17
Treponema pallidum*	**128**	6	10	12	17	13	12	17	7	7	10	7	10

Mycobacteria													
M. tuberculosis, pulmonary*	**295**	22	30	20	27	23	24	21	22	29	31	21	25
M. tuberculosis, other*	**178**	14	16	14	19	21	18	11	16	16	15	13	5
Mycobacterium, atypical*	**431**	32	41	36	45	44	32	33	35	33	31	37	32
Resistant bacteria													
Enterococcus, VRE	**5**	-	-	-	-	-	2	-	-	1	-	-	2
S. aureus, MRSA	**597**	51	70	50	44	53	46	64	40	34	43	69	33
S. pneumoniae, Pen-I	**271**	30	33	22	28	21	23	9	7	18	27	30	23
S. pneumoniae, Pen-R	**76**	5	3	9	8	10	6	2	3	6	8	10	6
Bacteria, other													
Borrelia	**884**	69	44	50	53	57	64	82	96	128	93	84	64
Corynebacterium diphtheriae*	**-**	-	-	-	-	-	-	-	-	-	-	-	-
Francisella tularensis	**106**	-	-	1	1	1	-	1	31	48	17	5	1
Haemophilus influenzae type b, blood/CSF*	**4**	-	2	-	-	1	-	-	-	1	-	-	-
Listeria monocytogenes*	**20**	4	2	-	1	1	1	2	2	3	2	-	2
Neisseria meningitidis*	**49**	4	2	3	3	5	5	4	1	3	7	5	7
Streptococcus A, blood/CSF	**153**	8	8	15	10	12	8	20	12	11	15	13	21
Viruses, other													
Coxsackie A	**2**	1	1	-	-	-	-	-	-	-	-	-	-
Coxsackie B	**3**	1	-	-	-	-	-	-	1	1	-	-	-
Echovirus	**3**	-	-	-	-	-	-	-	-	2	-	-	1
Enterovirus	**128**	11	15	13	8	7	1	2	17	27	14	7	6
Parvovirus	**100**	13	14	11	8	10	11	12	10	3	2	2	4
Poliovirus*	**-**	-	-	-	-	-	-	-	-	-	-	-	-
Puumalavirus	**2603**	295	179	173	124	112	97	173	201	187	257	465	340
Mumps virus*	**7**	2	1	-	1	-	-	2	1	-	-	-	-
Sindbisvirus	**597**	-	2	1	1	1	2	10	193	322	58	6	1
Tick-born encephalitis virus	**38**	-	-	-	-	1	2	8	16	7	2	2	-
Morbillivirus*	**-**	-	-	-	-	-	-	-	-	-	-	-	-
Rubella virus*	**4**	1	1	-	1	1	-	-	-	-	-	-	-
Parasites, other													
Echinococcus*	**1**	-	-	-	-	-	-	1	-	-	-	-	-
Plasmodium spp.*	**31**	-	3	4	2	2	2	4	-	2	3	2	7

Table in Annex 2

Cases notified to the Infectious Disease Register by province in 2002

Notifications by physicians and laboratories have been combined (*) for category 1 and 2 infections. Data for other microbes is based on laboratory notifications only.

Province	**Total**	Etelä-Suomi	Länsi-Suomi	Itä-Suomi	Oulu	Lappi	Åland
Population 31.12.2002	**5 206 295**	2 106 761	1 843 225	584 974	457 345	187 777	26 257
Respiratory pathogens							
Adenovirus	**775**	241	325	95	74	34	6
Bordetella pertussis	**581**	253	170	43	70	33	12
Chlamydia pneumoniae	**267**	96	148	7	14	1	1
Influenza A virus	**1 381**	669	577	74	24	35	2
Influenza B virus	**177**	72	71	30	2	2	-
Influenssavirus, non-typed	**94**	86	8	-	-	-	-
Legionella*	**18**	10	8	-	-	-	-
Mycoplasma pneumoniae	**630**	207	239	110	42	9	23
Parainfluenza virus	**352**	127	124	38	46	17	-
Respiratory syncytial virus (RSV)	**1 690**	705	587	146	166	78	8
Gastrointestinal pathogens							
Campylobacter	**3 738**	2019	1 056	334	245	66	18
Cryptosporidium	**18**	18	-	-	-	-	-
Entamoeba histolytica	**36**	9	20	2	3	2	-
Giardia lamblia	**264**	149	87	9	13	3	3
Infectio EHEC*	**17**	8	4	3	1	1	-
Calicivirus	**836**	455	264	36	65	12	4
Rotavirus	**1 549**	532	735	109	123	41	9
Salmonella Paratyphi*	**1**	1	-	-	-	-	-
Salmonella Typhi*	**3**	2	-	1	-	-	-
Salmonella, others	**2 357**	1177	701	265	145	58	11
Shigella*	**87**	55	14	11	5	2	-
Yersinia	**695**	388	168	56	66	13	4
Hepatitis pathogens							
Hepatitis A virus*	**393**	303	28	56	3	3	-
Hepatitis B virus, acute*	**177**	77	74	12	8	6	-
Hepatitis B virus, chronic*	**245**	116	88	9	24	4	4
Hepatitis C virus*	**1 373**	746	374	119	90	43	1
Hepatitis D virus	**1**	1	-	-	-	-	-
Hepatitis E virus	**3**	3	-	-	-	-	-
STD-pathogens							
Chlamydia trachomatis	**13 661**	5444	4 794	1 453	1 187	727	56
HIV*	**131**	96	26	4	2	3	-
Neisseria gonorrhoeae*	**235**	150	45	20	13	6	1
Treponema pallidum*	**128**	69	25	26	5	2	1

Mycobacteria							
M. tuberculosis, pulmonary*	**295**	126	97	31	25	15	1
M. tuberculosis, other*	**178**	63	68	26	12	8	1
Mycobacterium, atypical*	**431**	166	159	60	27	18	1
Resistant bacteria							
Enterococcus, VRE	**5**	2	3	-	-	-	-
S. aureus, MRSA	**597**	135	194	87	160	19	2
S. pneumoniae, Pen-I	**271**	137	59	32	39	4	-
S. pneumoniae, Pen-R	**76**	38	19	5	5	9	-
Bacteria, other							
Borrelia	**884**	270	146	79	12	2	375
Corynebacterium diphtheriae*	-	-	-	-	-	-	-
Francisella tularensis	**106**	32	53	5	16	-	-
Haemophilus influenzae tyye b, blood/CSF	**4**	1	-	1	2	-	-
Listeria*	**20**	5	12	1	-	2	-
Neisseria meningitidis*	**49**	15	23	7	2	2	-
Streptococcus A, blood/CSF	**153**	65	44	26	15	2	1
Viruses, other							
Coxsackie A	**2**	1	1	-	-	-	-
Coxsackie B	**3**	2	1	-	-	-	-
Echovirus	**3**	-	3	-	-	-	-
Enterovirus	**128**	5	110	2	10	1	-
Parvovirus	**100**	37	45	17	1	-	-
Polio*	-	-	-	-	-	-	-
Puumalavirus	**2603**	391	1015	817	279	99	2
Mumps virus*	**7**	3	3	1	-	-	-
Sindbisvirus	**597**	82	206	277	30	2	-
Tick-born encephalitis virus	**38**	1	11	-	-	-	26
Morbillivirus*	-	-	-	-	-	-	-
Rubella virus*	**4**	3	1	-	-	-	-
Parasites, other							
Echinococcus*	**1**	1	-	-	-	-	-
Plasmodium spp.*	**31**	20	5	3	1	2	-

Population: Official Statistics of Finland 2003

Table in Annex 3

Cases notified to the Infectious Disease Register by healthcare district in 2002

Notifications by physicians and laboratories have been combined (*) for category 1 and 2 infections. Data for other microbes is based in laboratory notifications only.

	Total	VAR	SAT	KHÄ	PIR	PHÄ	KYM	EKA	ESA	ISA	PKA	PSA	KSU	EPO	VAA	KPO	PPO	KAI	LPO	LAP	AHV	HUS
Respiratory pathogens																						
Adenovirus	**775**	105	53	38	63	29	22	26	19	10	26	40	38	17	27	22	49	25	1	33	6	126
Bordetella pertussis	**581**	37	22	56	44	24	19	2	6	4	11	22	46	19	-	2	63	7	1	32	12	152
Chlamydia pneumoniae	**267**	61	18	9	12	5	-	9	-	2	4	1	11	27	17	2	3	11	1	-	1	73
Influenza A virus	**1 381**	226	171	88	90	15	9	50	28	8	16	22	55	28	5	2	23	1	14	21	2	507
Influenza B virus	**177**	30	2	6	1	1	5	6	5	1	12	12	32	-	6	-	2	-	1	1	-	54
Influenzavirus, non-typed	**94**	7	-	-	-	35	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	51
Legionella*	**18**	3	1	1	2	-	1	-	-	-	-	-	-	2	-	-	-	-	-	-	-	8
Mycoplasma pneumoniae	**630**	80	28	13	33	13	5	9	19	5	51	35	58	7	12	21	31	11	1	8	23	167
Parainfluenza virus	**352**	69	6	8	29	8	5	1	8	-	9	21	4	5	9	2	45	1	-	17	-	105
Respiratory Syncytial virus (RSV)	**1 690**	125	165	15	116	37	60	23	33	9	20	84	49	61	47	24	146	20	8	70	8	570
Gastrointestinal pathogens																						
Campylobacter	**3 738**	232	106	89	352	114	121	94	51	29	89	165	157	80	82	47	207	38	22	44	18	1 601
Cryptosporidium	**18**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	18
Entamoeba histolytica	**36**	10	-	-	7	-	-	1	-	-	1	1	2	-	1	-	2	1	2	-	-	8
Giardia lamblia	**264**	34	3	4	31	4	2	2	-	-	5	4	7	4	5	3	6	7	2	1	3	137
Infectio EHEC*	**17**	-	1	2	-	1	2	-	-	-	-	3	-	3	-	-	1	-	-	1	-	3
Calicivirus	**836**	109	24	30	28	4	67	109	7	3	6	21	69	16	15	3	37	28	-	12	4	244
Rotavirus	**1 549**	49	137	78	205	47	42	60	23	37	16	33	115	142	65	22	96	27	8	33	9	305
Salmonella Typhi*	**3**	-	-	-	-	-	-	-	-	-	-	1	-	-	-	-	-	-	-	-	-	2
Salmonella Paratyphi*	**1**	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Salmonella, others	**2 357**	173	93	71	196	65	65	70	30	34	68	135	99	57	61	22	109	36	12	46	11	904
Shigella*	**87**	3	2	-	8	2	4	1	1	3	2	5	-	-	1	-	4	1	1	1	-	48
Yersinia	**695**	20	25	9	44	31	39	10	6	5	20	26	35	15	15	14	56	10	2	11	4	298
Hepatitis pathogens																						
Hepatitis A virus*	**393**	6	-	4	4	4	18	17	9	1	18	28	16	-	2	-	3	-	2	1	-	260
Hepatitis B virus, acute*	**177**	19	8	4	11	6	9	3	1	2	4	5	5	3	27	1	7	1	1	5	-	55
Hepatitis B virus, chronic*	**245**	35	2	-	20	5	11	10	-	2	4	3	11	-	20	-	18	6	3	1	4	90
Hepatitis C virus*	**1 373**	139	43	60	71	55	53	37	16	2	28	73	59	17	35	10	68	22	18	25	1	541
Hepatitis D virus	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Hepatitis E virus	**3**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3
STD-pathogens																						
Chlamydia trachomatis	**13661**	1273	586	396	1177	499	428	280	241	138	452	628	809	474	336	139	951	236	256	471	56	3835
HIV*	**131**	13	2	2	5	3	-	2	-	-	1	3	3	2	1	-	2	-	2	1	-	89
Neisseria gonorrhoeae*	**235**	18	6	2	13	31	7	8	-	1	13	6	5	1	2	-	12	1	1	5	1	102
Treponema pallidum*	**128**	9	3	1	8	3	10	7	7	-	17	2	3	-	1	1	2	3	-	2	1	48

Mycobacteria																						
M. tuberculosis, pulmonary*	**295**	30	7	8	15	6	18	13	3	7	7	15	11	23	9	2	22	3	-	15	1	80
M. tuberculosis, other*	**178**	18	7	6	13	6	6	3	4	4	9	9	11	10	9	-	9	3	4	4	1	42
Mycobacterium, atypical*	**431**	28	7	6	52	16	6	19	14	2	8	36	20	37	14	1	21	6	3	15	1	119
Resistant bacteria																						
Enterococcus, VRE	**5**	2	-	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	1
S. aureus, MRSA	**597**	10	14	14	125	9	7	3	36	10	13	28	33	5	4	3	157	3	5	14	2	102
S. pneumoniae, Pen-I	**271**	14	2	3	23	-	16	7	-	-	5	27	7	-	6	7	39	-	4	-	-	111
S. pneumoniae, Pen-R	**76**	6	-	-	13	2	3	8	5	-	-	-	-	-	-	-	5	-	5	4	-	25
Bacteria, other																						
Borrelia	**884**	76	20	6	5	10	45	13	12	27	6	39	15	15	11	4	12	-	-	2	375	191
Corynebacterium diphtheriae*																						
Francisella tularensis	**106**	-	5	1	4	1	16	1	3	-	-	2	43	-	-	1	16	-	-	-	-	13
Haemophilus influenzae type b*	**4**	-	-	-	-	-	1	-	-	-	1	-	-	-	-	-	1	1	-	-	-	-
Listeria*	**20**	4	2	1	1	1	-	-	1	-	-	-	2	-	2	1	-	-	-	2	-	3
Neisseria meningitidis*	**49**	3	3	-	9	5	-	-	1	1	2	3	3	2	2	1	2	-	2	-	-	10
Streptococcus A, blood/CSF	**153**	10	7	4	11	4	3	4	4	2	3	17	10	3	2	1	13	2	1	1	1	50
Viruses, other																						
Coxsackie A	**2**	-	1	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Coxsackie B	**3**	-	-	-	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Echovirus	**3**	2	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Enterovirus	**128**	92	8	1	5	-	-	-	-	-	-	2	-	-	5	-	10	-	1	-	-	4
Parvovirus	**100**	22	10	9	3	-	2	1	2	7	3	5	1	2	5	2	1	-	-	-	-	25
Poliovirus*																						
Puumalavirus	**2 603**	28	67	44	190	59	13	65	240	155	156	275	382	134	96	118	223	56	33	66	2	201
Mumps virus*	**7**	-	1	-	1	3	-	-	-	-	1	-	-	-	-	1	-	-	-	-	-	-
Sindbisvirus	**597**	10	12	5	59	6	3	9	31	11	140	95	72	32	11	10	27	3	1	1	-	59
Tick-born encephalitis virus	**38**	4	2	-	1	-	-	-	-	-	-	-	-	-	-	4	-	-	-	-	26	1
Morbillivirus*																						
Rubella virus*	**4**	-	-	-	1	1	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	2
Parasites, other																						
Echinococcus*	**1**	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	1
Plasmodium spp.*	**31**	-	-	-	3	1	-	-	1	2	-	-	-	-	2	-	1	-	1	1	-	19

Abbrev.	Heathcare district	Population 31.12.2002
HUS	Helsinki and Uusimaa	1 415 055
VAR	Varsinais-Suomi	456 357
SAT	Satakunta	228 704
KHÄ	Kanta-Häme	165 886
PIR	Pirkanmaa	455 299
PHÄ	Päijät-Häme	207 413
KYM	Kymenlaakso	181 669

Abbrev.	Healthcare district	Population 31.12.2002
EKA	Etelä-Karjala	129 372
ESA	Etelä-Savo	105 122
ISA	Itä-Savo	65 355
PKA	Pohjois-Karjala	171 451
PSA	Pohjois-Savo	250 368
KSU	Keski-Suomi	265 078
EPO	Etelä-Pohjanmaa	194 545

Abbrev.	Healthcare district	Population 31.12.2002
VAA	Vaasa	165 757
KPO	Keski-Pohjanmaa	77 483
PPO	Pohjois-Pohjanmaa	373 868
KAI	Kainuu	83 477
LPO	Länsi-Pohja	67 159
LAP	Lappi	120 618
AHV	Ahvenanmaa	26 257
Total		**5206295**

Table in Annex 4

Microbial findings notified by laboratories by month in 2002

	Total	January	February	March	April	May	June	July	August	September	October	November	December
Respiratory pathogens													
Adenovirus	**775**	46	122	90	43	37	39	44	57	70	68	81	78
Bordetella pertussis	**581**	22	16	22	24	31	25	48	74	74	98	69	78
Chlamydia pneumoniae	**267**	19	10	12	17	19	14	12	11	30	49	45	29
Influenza A virus	**1381**	31	384	631	294	31	3	1	1	1	1	1	2
Influenza B virus	**177**	4	23	42	52	28	6	2	1	1	-	3	15
Influenzavirus, non-typed	**94**	8	25	48	10	-	-	-	-	-	-	1	2
Legionella	**18**	-	1	-	2	2	3	2	1	4	2	1	-
Mycoplasma pneumoniae	**630**	95	81	65	45	39	24	33	36	63	65	51	33
Parainfluenza virus	**352**	22	30	32	32	15	15	5	11	8	31	75	76
Respiratory syncytial virus (RSV)	**1690**	872	511	179	46	19	6	2	1	3	4	18	29
Gastrointestinal pathogens													
Campylobacter	**3738**	247	207	264	239	212	297	770	584	293	247	222	156
Cryptosporidium	**18**	3	1	1	2	2	1	1	4	1	-	1	1
Entamoeba histolytica	**36**	5	1	6	6	2	2	4	1	2	4	2	1
Escherichia coli EHEC	**15**	-	-	1	-	1	4	4	2	1	-	2	-
Giardia lamblia	**264**	18	17	15	29	20	24	21	30	26	25	19	20
Calicivirus	**836**	38	26	43	63	92	34	8	19	39	70	207	197
Rotavirus	**1549**	130	192	246	308	229	167	45	16	14	29	54	119
Salmonella Paratyphi	**1**	-	-	-	-	-	1	-	-	-	-	-	-
Salmonella Typhi	**3**	1	-	-	-	-	1	-	-	-	1	-	-
Salmonella, other	**2357**	200	135	164	164	133	133	309	329	251	253	145	141
Shigella	**85**	8	1	10	7	3	5	9	7	8	7	17	3
Yersinia	**695**	53	45	54	72	77	62	57	100	56	40	50	29
Hepatitis pathogens													
Hepatitis A virus	**386**	16	15	24	35	40	25	34	44	42	47	27	37
Hepatitis B virus	**383**	23	22	33	41	45	36	34	38	33	31	29	18
Hepatitis C virus	**1328**	120	119	123	103	133	102	95	113	104	133	98	85
Hepatitis D virus	**1**	-	-	-	-	-	-	-	-	-	-	1	-
Hepatitis E virus	**3**	1	-	-	-	1	-	-	-	-	1	-	-
STD-pathogens													
Chlamydia trachomatis	**13661**	1299	1105	977	1104	1266	952	1159	1293	1190	1293	1089	934
HIV	**131**	13	11	10	11	12	12	12	8	7	15	11	9
Neisseria gonorrhoeae	**226**	20	21	17	16	13	19	22	23	21	18	21	15
Treponema pallidum	**118**	6	9	10	16	13	10	15	7	7	10	5	10

Mycobacteria													
Mycobacterium tuberculosis complex	**389**	29	34	29	39	33	33	25	32	39	39	30	27
Mycobacterium, atypical	**415**	31	40	34	44	43	32	31	35	31	31	33	30
Resistant bacteria													
Enterococcus, VRE	**5**	-	-	-	-	-	2	-	-	1	-	-	2
S. aureus, MRSA	**597**	51	70	50	44	53	46	64	40	34	43	69	33
S. pneumoniae, Pen-I	**271**	30	33	22	28	21	23	9	7	18	27	30	23
S. pneumoniae, Pen-R	**76**	5	3	9	8	10	6	2	3	6	8	10	6
Bacteria, other													
Borrelia	**884**	69	44	50	53	57	64	82	96	128	93	84	64
Corynebacterium diphtheriae	-	-	-	-	-	-	-	-	-	-	-	-	-
Francisella tularensis	**106**	-	-	1	1	1	-	1	31	48	17	5	1
Haemophilus influenzae type b, blood/CSF	**4**	-	2	-	-	1	-	-	-	1	-	-	-
Listeria monocytogenes, blood/CSF	**20**	4	2	-	1	1	1	2	2	3	2	-	2
Neisseria meningitidis, blood/CSF	**48**	3	2	3	3	5	5	4	1	3	7	5	7
Streptococcus A, blood/CSF	**153**	8	8	15	10	12	8	20	12	11	15	13	21
Viruses, other													
Coxsackie A	**2**	1	1	-	-	-	-	-	-	-	-	-	-
Coxsackie B	**3**	1	-	-	-	-	-	-	1	1	-	-	-
Echovirus	**3**	-	-	-	-	-	-	-	-	2	-	-	1
Enterovirus	**128**	11	15	13	8	7	1	2	17	27	14	7	6
Parvovirus	**100**	13	14	11	8	10	11	12	10	3	2	2	4
Poliovirus	-	-	-	-	-	-	-	-	-	-	-	-	-
Puumalavirus	**2 603**	295	179	173	124	112	97	173	201	187	257	465	340
Mumps virus	**7**	2	1	-	1	-	-	2	1	-	-	-	-
Sindbisvirus	**597**	-	2	1	1	1	2	10	193	322	58	6	1
Tick-born encephalitis virus	**38**	-	-	-	-	1	2	8	16	7	2	2	-
Morbillivirus	-	-	-	-	-	-	-	-	-	-	-	-	-
Rubella virus	**4**	1	1	-	1	1	-	-	-	-	-	-	-
Parasites, other													
Echinococcus	-	-	-	-	-	-	-	-	-	-	-	-	-
Plasmodium spp.	**31**	-	3	4	2	2	2	4	-	2	3	2	7

Helsinki 2003