

Communicable Diseases

Food poisoning and salmonella surveillance in England and Wales: 1982

Public Health Laboratory Service Communicable Disease Surveillance Centre

This is the fourth annual review of food poisoning and salmonella infection in England and Wales based on reports submitted to the Public Health Laboratory Service Communicable Disease Surveillance Centre by public health and hospital laboratories and by medical officers for environmental health and environmental health officers.

Cases and outbreaks

Definitions—A case of salmonellosis occurs when the organism is isolated from a person with symptoms. A case of food poisoning other than salmonellosis occurs in a person with symptoms from whom the relevant organism has been isolated or who has been affected in an outbreak of food poisoning; an outbreak is defined as two or more related cases of food poisoning or salmonellosis. Outbreaks are classified as family outbreaks when they have occurred in one household or general outbreaks if more widespread; sporadic cases occur when an affected patient has had no known association with another person infected with the same organism; an incident of food poisoning or salmonellosis refers to a sporadic case or an outbreak.

In 1982 laboratories reported 12 684 cases of bacterial food poisoning and salmonella infection, a 19% increase over the 1981 figure. The number of cases of *Salmonella typhimurium* reported by laboratories increased by 1570 (46%), a figure more than double that reported by laboratories each year from 1971 to 1978 (fig 1). The number of reports of other salmonella serotypes remained almost exactly the same as in 1981. The number of laboratory reports of *Clostridium perfringens* food poisoning increased by 537 (58%), but the number of cases of *Staphylococcus aureus* and *Bacillus* sp food poisoning decreased slightly.

The number of sporadic cases reported by laboratories increased in 1982 by 1519 (20%) and almost all of this was attributable to *S typhimurium*; sporadic cases of *S typhimurium* increased by 1438 (55%) accounting for 92% of the increase in total cases of *S typhimurium* and 71% of the increase in all laboratory reported cases of bacterial food poisoning and salmonellosis.

Places of outbreaks

Outside the home salmonella outbreaks occurred mainly in restaurants and at receptions, although the proportion in these sites decreased from 37% in 1981 to 26% in 1982. There were 26 salmonella outbreaks in hospitals in 1982, an increase of 11 from 1981. One feature of 1982 outbreaks was the large number occurring on farms and attributed to unpasteurised milk. The increase in *C perfringens* outbreaks in 1982 was made up of a rise in numbers of outbreaks in institutions, hospitals, and canteens.

In the incidents reported to the Communicable Disease Surveillance Centre the food vehicle of infection is only infrequently confirmed epidemiologically or microbiologically.

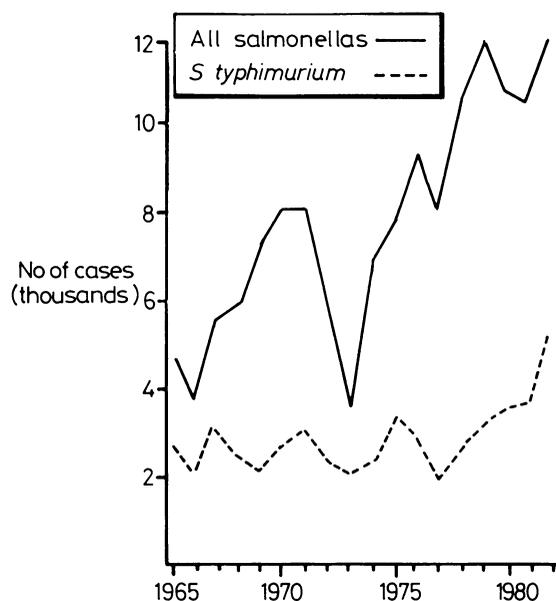


FIG 1—Cases of salmonella and *S typhimurium* infection, 1965-82.

Therefore food items reported to be vehicles of infection should be viewed cautiously. Where the food vehicle was reported poultry was the commonest vehicle cited in salmonella outbreaks. Unpasteurised milk was the suggested vehicle in 21 outbreaks (table I).

In addition to the outbreaks described above there were 11 outbreaks (over 157 ill persons) of campylobacter infection reported in 1982 due to untreated milk. Also seven incidents comprising 52 cases were attributed to contaminated cockles and other shellfish; small round viruses were identified in the stools in all cases. A further 17 incidents were due to scombrototoxin poisoning and two incidents were associated with consumption of red kidney beans.

Salmonella serotypes and phage types

S typhimurium accounted for 44% of all the salmonella isolations (cases and symptomless excretors) reported by laboratories in 1982 (fig 2). Laboratory isolations of *S hadar* fell to 275, 608 fewer than in 1981 and 1417 fewer than in 1980.

TABLE 1—Food poisoning reported by laboratories, medical officers of environmental health, and environmental health officers 1982: foodborne incidents by food and by causative agent

Food vehicle	Salmonella sp	Clostridium perfringens	Staphylococcus aureus	Bacillus cereus and Bacillus sp	Total
Chicken	41	3	—	—	44
Turkey	7	7	—	—	14
Poultry (not specified)	1	—	—	—	1
Wild duck	1	—	—	—	1
Beef	5	12	—	—	17
Pork or ham	9	12	5	—	26
Lamb	1	2	—	1	4
Other meats and pies	22	19	—	2	43
Mixed foods	6	2	1	3	12
Gravy or sauces	—	5	—	—	5
Rice	—	—	—	6	6
Milk	21	—	—	—	21
Cheese	1	—	—	—	1
Other foods:					
Rice pudding	1	—	—	—	1
Stuffing	—	1	—	—	1
Chocolate	1	—	—	—	1
Egg vol-au-vent	—	—	1	—	1
Vegetarian roast	—	—	—	1	1
Not known	495	6	—	1	502
Total	612	69	7	14	702

These same phage types also appeared in the list of the 10 commonest phage types reported in animals under the Zoonoses Order, 1975. Incidents in adult cattle and calves accounted for 65-100% of animal incidents in these phage types.

Deaths from salmonella infection

Isolations of food poisoning salmonella serotypes were reported from 62 people who died in 1982. In 36 cases the salmonella infection was believed to be the cause of death. One patient was aged 13 years and 22 were 65 or older. Of 156 patients with bacteraemia 18 died. Three patients out of a total of eight with meningitis died: a baby boy aged 6 days, a 4 year old boy, and a woman aged 35 years who also had pericarditis. In 13 patients death followed diarrhoea without reported bacteraemia. All but four were aged 65 or over. The four remaining were aged 38, 41, 47, and 47 years. In 28 patients who died the salmonella infection was not known or not thought to be the cause of death.

Outbreaks of unknown aetiology

As in 1981, 29 outbreaks of unknown aetiology were reported by medical officers of environmental health and environmental health officers. In 11 outbreaks affecting 40 people the median incubation period was not reported. The largest of these incidents occurred in a residential home for the elderly where 17 of 150 people were ill with diarrhoea. In nine outbreaks affecting 35 people a median incubation period of less than 12 hours was reported. Vehicles of infection in two outbreaks were believed to be Chinese takeaway foods and illness was possibly caused by *B cereus*.

In eight outbreaks affecting 328 people the median incubation period was over 24 hours. In three incidents food was prepared in private houses. In one of these three people became ill 29-75 hours after eating prawns and cockles. In the other two 18 of 30 people and 34 of 47 people at parties were ill with vomiting and diarrhoea. In one party all foods except home made pâté had been refrigerated before serving, but high *Escherichia coli* counts were found in trifle, pork, and home made gateaux.

Two outbreaks occurred in schools, where children suffered from vomiting and diarrhoea. The vehicles of infection were not known. Three outbreaks occurred in restaurants. In one incident 28 people eating at one public house over a 13 day period became ill with symptoms including nausea, vomiting, abdominal pain, and diarrhoea. Foods eaten included chicken, coleslaw, salad, ham sandwiches, roast beef, and roast pork. One ill person ate only coleslaw. These longer incubation period outbreaks, all of which were bacteriologically negative, were characteristic of virus gastroenteritis.

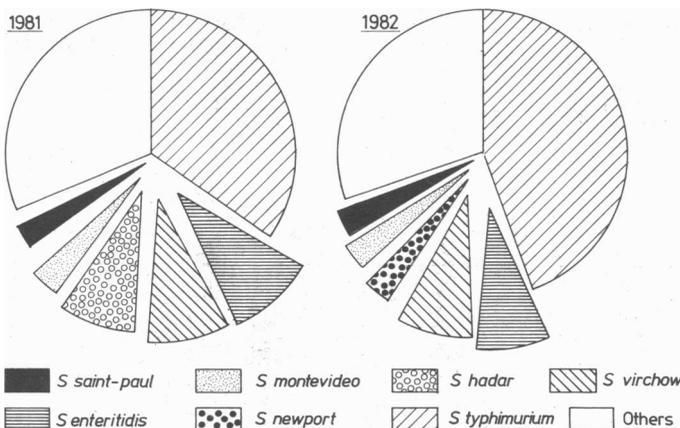


FIG 2—Six commonest salmonella serotypes isolated in 1981 and 1982.

TABLE II—Ten commonest *S typhimurium* phage types in human and animal incidents, 1982

Phage type	Human		Animal	
	No of incidents	No of outbreaks	Phage type	No of incidents
10	326	19	10	21
12	755	57	12	56
18	99	6	44	35
49	264	10	49	66
49a	333	22	49a	23
104	258	13	104	62
170	387	24	170	59
193	149	7	204	130
204	179	10	204a	112
204a	153	11	204c	63

Phage types in bold appear in the 10 most frequently reported for both human and animal isolates.

The second commonest serotype in 1982 was *S virchow* with 981 isolations, followed by *S enteritidis* with 959 isolations. There were 269 isolations of *S napoli*, usually a rare serotype in Britain, resulting from a countrywide outbreak due to contaminated Italian chocolate.

Table II records the 10 most commonly reported phage types of *S typhimurium* reported in human and animal incidents. The top eight human phage types accounted for 2655 (62%) of the 4281 *S typhimurium* incidents reported by laboratories.

Comment

The major feature of 1982 food poisoning and salmonella infection was the increase in sporadic cases of *S typhimurium*; the predominant phage types in humans were those commonly reported in adult cattle and calves. An upward trend has been evident since 1977 (fig 1); in 1982 reports exceeded the highest figure reported previously, in 1955. This earlier epidemic was thought to have been the result of cross infection of cattle and meat at poorly controlled abattoirs.¹ It is difficult, however, to explain why the recent increase in laboratory reports should be mainly due to sporadic cases. The possibility of a surveillance artefact should be borne in mind, but it is difficult to believe that changes in policies by laboratories for taking stool samples from ill people, or in reporting to the Communicable Disease Surveillance Centre, would selectively increase *S typhimurium* reports. One possible explanation is that the sporadic cases were part of unrecognised outbreaks caused by a vehicle or

vehicles of infection widely distributed for consumption in the home.

The number of outbreaks in which the vehicle of infection was proved was small, and one reason for this may have been delay in reporting outbreaks to the health authorities with the result that foods consumed were disposed of before the investigation began. It is often possible to identify a vehicle of infection, however, simply by comparing food histories of ill and well people at functions. This approach is especially rewarding when large groups are concerned, such as at schools, institutions, and receptions, and where a choice of foods is available. A questionnaire containing a list of foods available and symptoms of illness can be designed and distributed easily and quickly. The Communicable Disease Surveillance Centre would be glad to assist in designing such surveys and in analysing results.

Several incidents occurred in 1982 which show the success and importance of national surveillance and the benefits of an epidemiological approach to investigation. For example, 32 reports of *Salmonella napoli* infection, mostly in children in the south of England, were received at the Communicable Disease Surveillance Centre between May and June 1982. As a common source of infection seemed likely an epidemiological investigation was undertaken by the Communicable Disease Surveillance Centre together with local laboratories and environmental health departments.² Case control studies showed a strong association between illness and consumption of two types of imported chocolate covered bars; and the association

was confirmed by isolation of *S napoli* from samples of products. The outbreak quickly came to an end after a public health warning issued by the Department of Health and Social Security on 23 July and withdrawal of the chocolate bars from sale. Altogether 245 cases were reported, including 51 people who were admitted to hospital. Only 20% of available stocks had been sold when the cause of the outbreak was identified and it is probable that about 200 hospital admissions and many thousands of cases were prevented by early detection of the outbreak and withdrawal of the remaining 80% of chocolate bars from the market. In a second example an unusual increase in reports of *S oranienberg* to the Communicable Disease Surveillance Centre was noted during the autumn. Telephone inquiries showed that in 22 cases, 18 from England and Wales and four from Scotland, the sufferers had stayed at the same hotel in Ibiza in the period mid August to mid September. Spanish health authorities were informed of these findings. Recording of recent travel on the Communicable Disease Surveillance Centre report forms is particularly helpful in detecting this sort of problem.

References

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The State of the Prisons

The mental health of prisoners

I—How many mentally abnormal prisoners?

RICHARD SMITH

The problem of managing effectively the mentally abnormal who offend against the law seems to be one of those chronic problems that our society and many others cannot solve.¹⁻⁵ Maybe there was a golden age when those people who were crazy or simply odd and unable to cope with life without becoming aggressive or antisocial were able to live in the warmth of a tolerant society, but almost certainly there wasn't. For as long as history has noticed such people they have drifted from prisons to hospitals to asylums to hostels, and usually those institutions have been anxious to be rid of them. Dr Jim Orr, a recent director of the prison medical service, was adamant that the mentally ill did not belong in prison,² and the then director of the prison department,⁶ the May inquiry into the prison services,⁷ and the Parliamentary All-Party Penal Affairs Group⁸ have all agreed with him. But NHS hospitals are often unwilling to take even those who are defined as mentally ill within the terms of the Mental Health Act, and certainly want nothing to do with the

mentally abnormal who cannot be defined as mentally disordered within the Act. The special hospitals, too, are willing to take only those who fall within the Act and who are thought to be treatable, and many fulfil neither condition.^{8, 9}

In 1975 the Butler Committee on Mentally Abnormal Offenders called optimistically for all aspects of the problem of mentally abnormal prisoners to be "tackled with urgency, determination, and a massive injection of money."⁴ Nine years later urgency, determination, and money are still in short supply but the problems remain and must be confronted. In this article and the next I consider the problems mainly from the perspective of prisons: how many mentally abnormal people are there in prison; what is the effect of prison on mental health; what happens to mentally abnormal prisoners and how might their problems be better managed?

How many mental abnormal prisoners?

Asking how many mentally abnormal people there are in prison is similar to asking how many people there are with drink problems in the community or how many people on a general practitioner's list are psychiatrically unwell: by varying the de-