



FOODBORNE DISEASES POSSIBLY 350 TIMES MORE FREQUENT THAN REPORTED

According to the latest edition of the World Health Statistics Quarterly, surveys indicate that foodborne diseases may be 300-350 times more frequent than the reported cases tend to indicate.

It is believed that hundreds of millions of people worldwide suffer from diseases caused by contaminated food. Developing countries suffer the most from a wide range of diseases including cholera, campylobacteriosis, Escherichia coli infections, salmonellosis, shigellosis, brucellosis and hepatitis A. The annual incidence of some 1.5 billion episodes of diarrhoea in children under five years of age, resulting in over three million deaths is an indication of the scale of the problem, since a significant proportion of the diarrhoeal disease cases are of foodborne origin.

Paradoxically, in spite of safe water supplies, sound standards of hygiene and application of technologies such as pasteurization, a number of industrialized countries have experienced an increase in the incidence of foodborne diseases in recent years. Surveys indicate that no less than 5 - 10% of the population are involved annually. On top of that, the emergence of Listeria monocytogenes, Escherichia coli O157 and multi-antibiotic resistant Salmonella typhimurium are justifiably perceived as new significant threats to public health. Witness the much-publicised outbreaks of Escherichia coli O157 as far apart as Japan and Scotland last year.

In addition to the human suffering caused by foodborne diseases in terms of death and ill-health, substantial economic costs are involved, affecting individuals and families, industries, health care systems and entire com-

munities. At the national level, epidemics of foodborne diseases affect both tourism and trade. When cholera broke out in Peru in 1991, over US\$ 700 million were lost in fish and fishery products exports. In the three months following the start of the epidemic, US\$ 70 million were lost due to closure of food service establishments and a decrease in tourism. The global value of international trade in agricultural products and commodities was estimated at US\$ 381 billion in 1993.

The WHO report quotes American statistics, "Each year, seven foodborne pathogens (Campylobacter jejuni, Clostridium perfringens, E. coli O157:H7, Listeria monocytogenes, Salmonella, Staphylococcus aureus and Toxoplasma gondii) cause an estimated 3.3 - 12.3 million cases in the United States and up to 3,900 deaths. Their costs in human illness were estimated at US\$ 6.5 - 34.9 billion annually."

"Although food safety is a major (public health) problem, many public health authorities do not appreciate its importance for community health and development", explains Dr Fritz Kaferstein, Director of the WHO Programme of Food Safety and Food Aid. "WHO continues to promote the concept of shared responsibility among government, industry and consumers in the fight against foodborne diseases. To ensure the safety of food, each group must integrate its efforts through involvement in research, regulatory control, infrastructure development, epidemiology and training, education and learning".

Europe

In France, the number of outbreaks rose from 594 in 1990 to 732 in 1992. Where the agent was identified, Sal-

monella was responsible for 83-87 per cent of outbreaks. Egg and meat products were associated with various outbreaks caused by a number of different Salmonella strains. In Germany, about 1,000 cases of salmonellosis were linked to the consumption of paprika and paprika-powdered potato chips which makes it the largest documented outbreak from contaminated spices. Powdered infant formula was responsible for 48 known cases of salmonellosis in infants under seven months from 14 regions in Spain in 1994. The implicated strain was a lactose-fermenting Salmonella virchow. In Scotland, there was a large meatborne Escherichia coli O157 outbreak with 396 cases and 11 deaths at the end of last year. The persons involved had eaten cold cooked meats from a butcher or had eaten cooked steak in gravy at a church lunch supplied by the same butcher.

Africa

Little in the way of foodborne surveillance is done in Africa. As a result, the data are extremely scarce. Occasionally, acute illness directly associated with a food is documented as, for instance, in Tanzania, where the first major botulism outbreak claiming at least 18 deaths occurred in 1991. The outbreak was caused by consumption of locally-made fish meal. An outbreak of Escherichia O157 in Egypt in 1994 was traced to hamburgers and dairy products. As a follow-up, a survey of 175 foods obtained from slaughterhouses, supermarkets and farmers' homes was conducted for Escherichia coli O157. The bacterium was detected in 6 per cent of unpasteurized milk; 6 per cent of fresh retail beef, 4 per cent of boneless chicken and 4 per cent of lamb meat samples.

Because of civil wars and national

conflicts, refugees and misplaced population are an increasing concern. Last year, 500,000 refugees returned from east Zaire to Rwanda. The epidemiological sentinel stations registered about 14,000 consultations and 47 deaths. Diarrhoeal diseases accounted for two-thirds of all consultations. How much of this diarrhoeal disease is due to unsafe water and food is not known, but they are suspected to be major vehicles of transmitting this type of disease.

Asia

Except for a few countries such as Japan, relatively little in the way of surveillance of foodborne disease is carried out in Asia. In recent years in Japan, Salmonella has become much more frequent which is explained, at least partially, by changes in the national diet—eggs and egg products are now more popular than ever before. There were a number of outbreaks in Japan last year caused by *Escherichia coli* 0157:H7 resulting in 9,578 cases and 11 deaths. No responsible foods have yet been identified, except in a few isolated cases.

A comparative study of foodborne outbreaks in the Republic of Korea and Japan between 1971 and 1990 revealed considerable differences in the morbidity and mortality as well as in agents involved. Most incidents occurred in the workplace and the home in the Republic of Korea, whereas they were not frequent in restaurants and hotels in Japan. Seafood was often implicated in both countries, but food of animal origin was much more frequently associated with outbreaks in the Republic of Korea.

Oceania

In Australia some trends in notifications of foodborne diseases are apparent for 1991-1995. Laboratory isolates for *Campylobacter* and *Salmonella* are increasing, those for *Shigella* and *Yersinia* are decreasing and those for *Listeria monocytogenes* vary slightly from year to year. New Zealand updated its notifiable diseases in 1996 to include botulism, campylobacteriosis, cryptosporidiosis, giardiasis, listeriosis, toxic shellfish poisoning, VTEC, and yersiniosis. A recent summary for the years 1980 to 1995 indicates that the agents responsible for illness are similar to those in other industrialized countries with *Salmonella* being the predominant cause of morbidity and mortality.

North America

In both the United States and Canada, salmonellosis cases seem to have reached a plateau of about 40,000 and 9,000 each year, respectively, despite the fact that *Salmonella enteritidis* has become a major egg-borne pathogen in the United States in the last 15 years. Illness from *Escherichia coli* 0157 are being documented in outbreaks from both countries, not only from ground beef but also from vegetables, milk and apple juice. In 1994, 593 cases of *Salmonella enteritidis* were identified in Minnesota, USA, after a nationally-distributed brand of ice cream was eaten. Pasteurized ice cream mix had been transported in a tanker previously used for to carry non-pasteurized liquid egg. The United States commitment to epidemiological surveillance was reinforced by the presidential proposal for

the 1998 budget to allocate US\$ 43 million for a programme to detect foodborne outbreaks before they become widespread. This will help to reduce morbidity and mortality due to foodborne diseases, estimated at 6.5-33 million people and 9,000 deaths annually.

Central and South America

All Central, South American and Caribbean countries have some form of notifiable disease system. Diarrhoeal diseases are one of the main causes of death in young children. The causes are not generally known but amoebic dysentery, trichinosis, giardiasis, shigellosis, brucellosis, *Escherichia coli*, and hepatitis infections are all documented from Latin America and the Caribbean. Cholera, initially identified in Peru in 1991 with a total of 600,000 cases, rapidly spread to other countries, and in 1994 caused 112,611 cases and 1,229 deaths. The total number of cases and deaths from 1991 to 1994 was 1,061,188 and 9,989 respectively. The source of infection was probably contaminated food and water. The disease was spread partly through consumption of street-vended foods and beverages containing ice. Undercooked or raw seafood may also have been implicated. Shellfish may be contaminated not only with local sewage, but waste water pumped from ships in harbour.

Most Latin American countries now recognize that foodborne disease is important enough to justify some kind of surveillance scheme and are trying to develop better ways of determining numbers of cases and their causes.

Courtesy: WHO Press Release (58).