



# WEEKLY EPIDEMIOLOGICAL REPORT

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## Foodborne disease surveillance - Part II

### Emerging foodborne diseases

Cyidsporiosis, a foodborne disease caused by the microscopic *Cyidspora cayetanensis* parasite, caused its first outbreak in 1996, when at least 1465 people in the Canada and the USA and Canada became infected following the consumption of fresh raspberries imported from a Central American country. The infection is debilitating as it is characterized by protracted and often relapsing gastroenteritis. The disease returned in 1997, causing a second multi-location outbreak with more than 1 000 reported cases. Although the outbreaks were comparatively small, they were accompanied by large economic losses as consumers effectively boycotted not only imported raspberries but also domestically produced raspberries and strawberries. Trade in raspberries with the exporting country was not resumed for three years.

*Campylobacter* species, known to cause disease in animals since the beginning of the 20<sup>th</sup> century, have only recently been recognized as a cause of human disease. Since 1990, they have rapidly emerged to become the leading cause of bacterial disease in humans, affecting an estimated 2.4 million people each year in the USA alone. In developing countries, campylobacteriosis is widespread and causes significant morbidity, with a case-fatality rate in young children as high as 4 per 1 000 infections. The disease is known to cause arthritis and septicaemia in immuno-compromised populations. Additional concerns are raised by The number of newly described *Campylobacter* species, as well as the increasing number of antibiotic-resistant strains of the common species, *C. jejuni*. As yet another concern, the paralytic condition Guillain-Barre

syndrome has recently been identified as a serious complication of k serotype *enteritidis* appeared simultaneously around the world in the 1980s and has since undergone a 20-fold increase in Europe and North America. Infections with this bacteria are often associated with contaminated poultry or eggs. As many dishes prepared in restaurants and institutional kitchens are made from pooled eggs, a single contaminated egg can contaminate foods distributed to a large number of persons, and fatalities associated with outbreaks in institutions caring for the elderly have become a serious problem. Another serotype, *Salmonella typhimurium* DT104, which is resistant to five commonly prescribed antibiotics, has recently spread throughout many countries. In the USA, multidrug-resistant strains of *Salmonella newport*- the third most common serotype in that country - have increased by more than 30% in less than a decade. Studies conducted in 2002 indicated resistance to at least nine antibiotics, including third-generation cephalosporins commonly used to treat serious infections. Some well-known pathogens have only recently been shown to be predominantly foodborne. *Listeria monocytogenes* is considered emerging because the role of food in its transmission is newly recognized. Infections in pregnant women can cause abortion and still-birth. In infants and persons with a weakened immune system, infection may cause life-threatening septicemia and meningitis.

Some of the more spectacular recent outbreaks of foodborne disease in industrialized countries have been due to changes in the behaviour of a pathogen that allowed it to circumvent the defenses of public health.

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Examples include *E. coli* O157:H7, normally associated with undercooked beef, thriving in highly acidic foods and beverages such as mayonnaise and cider, and the BSE agent surviving all conventional deactivation procedures. *Listeria monocytogenes* can proliferate at low temperatures and thus endanger foods such as soft cheeses and processed meat products, even when properly stored in refrigerators. Surprises have also come from the increasing association of outbreaks with foods such as raspberries, cantaloupe, vegetable sprouts, and lettuce, which are generally considered healthy and above suspicion.

WHO first drew attention to trematode infections as a major public health problem in 1995. These infections, now clearly linked to an increased risk of liver cancer, are acquired via the consumption of raw or inadequately processed freshwater fish, shellfish, and aquatic plants contaminated with oocysts of trematode parasites, most notably the liver fluke. WHO estimates that 40 million persons are infected in Asia, Eastern Europe and Latin America.

#### **Antimicrobial resistance: another food-related risk**

Following the discovery that antibiotics promote growth as well as prevent disease in farm animals, the use of antibiotics in farms, aquaculture, and livestock production has escalated considerably. Today, approximately half of the total tonnage of antimicrobials is used to treat diseased animals, prevent disease and promote growth in livestock, and rid cultivated foodstuffs of various destructive organisms.

Continuous and often low-level dosing in the latter two applications provides ideal conditions for the development of drug-resistant strains of bacteria. Antibiotic use for prophylaxis or growth-promotion can select resistant forms of bacteria in the ecosystem, and resistant bacteria and resistance genes can be exchanged between humans and animals. In several disturbing cases, multiresistant bacteria infecting humans have been directly linked to resistant organisms in animals. Resistant forms of *Salmonella* and *Campylobacter* are of particular concern. The consequences for human medicine include increased incidence of human infections caused by resistant pathogens, and more frequent therapeutic failures.

A consultation held in 2000 elaborated 40 guiding principles aimed at minimizing problems for human health arising from the use of antimicrobial agents in food producing animals while recognizing the ongoing need for antimicrobial treatment of diseased animals. This work continued in 2002, when WHO issued recommendations on the monitoring of antimicrobial usage in food animals for the protection of human health.

#### **Chemical contaminants:**

Safety requires constant vigilance. Food safety is of particular public health concern because the exposure to possible infectious or toxic agents in food is universal and daily. Large numbers of people can be sickened during an outbreak. For

example, a 1994 outbreak of salmonellosis in the USA associated with contaminated ice cream affected an estimated 224 000 persons. In 1988, an outbreak of hepatitis A, resulting from consumption of contaminated clams, affected some 200 000 persons in China.

All populations are at potential risk of long-term health consequences following daily exposure to toxic chemical agents that may be present in food. In fact, the concept of the "balanced diet" was originally put forward to protect populations from overexposure to potentially toxic agents carried by a single food. Chemicals such as additives and contaminants introduced during processing, and residues of veterinary drugs and pesticides are of concern because of the possibility that exposure over time to even small quantities could increase the risk of several serious diseases. Adverse health effects linked to chemical exposures include various cancers, damage to the nervous system, disorders of the immune system, disturbances in reproductive function, and adverse effects on infant and child development.

The safety of food chemicals is kept under constant evaluation by a joint FAO/WHO mechanism. To date, acceptable daily intakes and other toxicological endpoints have been established for more than 1 500 food additives, 40 contaminants, 90 veterinary drug residues, and 230 pesticides. These international food safety standards are widely used by regulatory and trade bodies. Mechanisms set up to ensure that food products on the market comply with international safety standards work well to safeguard public health from chemical hazards associated with commercial food processing. Comparison of levels of exposure with established safe or tolerable levels provides assurance that long-term adverse effects due to chemicals will not occur. However, in many countries, levels for some chemicals are too high or may not be known at all.

In addition, major threats have arisen following the accidental contamination or deliberate adulteration of the food supply with dangerous chemicals. For example, in the winter of 1971-1972, an outbreak of mass poisoning took place in Iraq when seed grain treated with a methylmercury fungicide and intended for planting was used instead to prepare bread. The outbreak resulted in more than 6 000 hospitalizations and 400 deaths.

WHO is now leading efforts to understand the nature and extent of risks posed by the newly discovered chemical hazard and what measures can be used to reduce or eliminate such risks. Like surveillance of foodborne diseases, assuring safety of the food supply from toxic chemicals requires constant vigilance for both expected and unexpected hazards.

#### **Reference**

Global defense against the infectious disease threat. Global Disease 2002, World Health Organization, Geneva, 2003.

Table 1: Vaccine-preventable Diseases &amp; AFP

9<sup>th</sup> – 15<sup>th</sup> Feb 2008 (7<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Acute Flaccid Paralysis	00	00	00	00	00	00	01 AP=1	00	00	01	01	09	13	-30.8%
Diphtheria	00	00	00	00	00	00	00	00	00	00	00	00	00	00.0%
Measles	02	00	00	00	00	03	00	00	00	00	03	11	03	+333.3%
Tetanus	00	00	00	00	00	00	00	00	00	00	00	05	07	-28.6%
Whooping Cough	00	00	00	00	00	00	00	00	00	00	00	05	06	-16.6%
Tuberculosis	36	08	15	33	18	18	00	20	00	148	359	1345	1372	-1.9%

Table 2: Newly Introduced Notifiable Diseases

9<sup>th</sup> – 15<sup>th</sup> Feb 2008 (7<sup>th</sup> Week)

Disease	No. of Cases by Province									Number of cases during current week in 2008	Number of cases during same week in 2007	Total number of cases to date in 2008	Total number of cases to date in 2007	Difference between the number of cases to date between 2008 & 2007
	W	C	S	N	E	NW	NC	U	Sab					
Chicken-pox	40	06	27	04	13	15	08	04	14	131	69	690	351	+96.6%
Meningitis	07 GM=2 CO=3 KL=2	00	03 GL=2 HB=1	00	01 AM=1	06 KR=6	03 PO=3	01 BD=1	10 RP=2 KG=8	31	01	266	36	+638.9%
Mumps	09	06	04	00	04	05	02	01	04	35	09	313	88	+255.7%

Key to Table 1 &amp; 2

**Provinces:** W=Western, C=Central, S=Southern, N=North, E= East, NC=North Central, NW=North Western, U=Uva, Sab=Sabaragamuwa.  
**DPDHS Divisions:** CB=Colombo, GM=Gampaha, KL=Kalutara, KD=Kandy, ML=Matale, NE=Nuwara Eliya, GL=Galle, HB=Hambantota, MT=Matara, JF=Jaffna, KN=Killinochchi, MN=Mannar, VA=Vavuniya, MU=Mullaitivu, BT=Batticaloa, AM=Ampara, TR=Trincomalee, KM=Kalmunai, KR=Kurunegala, PU=Puttalam, AP=Anuradhapura, PO=Polonnaruwa, BD=Badulla, MO=Moneragala, RP=Ratnapura, KG=Kegalle.

Table 3: Laboratory Surveillance of Dengue Fever

9<sup>th</sup> – 15<sup>th</sup> Feb 2008 (7<sup>th</sup> Week)

Samples	Number tested		Number positive *		Serotypes									
					D <sub>1</sub>		D <sub>2</sub>		D <sub>3</sub>		D <sub>4</sub>		Negative	
	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH	GT	AH
Number for current week	09	02	01	00	00	00	01	00	00	00	00	00	00	00
Total number to date in 2008	36	15	04	05	00	00	02	01	00	00	00	00	02	00

**Sources:** Genetech Molecular Diagnostics & School of Gene Technology, Colombo [GT] and Genetic Laboratory Asiri Surgical Hospital [AH]

\* Not all positives are subjected to serotyping.

NA= Not Available.

**Data Sources:**

**Weekly Return of Communicable Diseases:** Diphtheria, Measles, Tetanus, Whooping Cough, Human Rabies, Dengue Haemorrhagic Fever, Japanese Encephalitis, Chickenpox, Meningitis, Mumps.

**Special Surveillance:** Acute Flaccid Paralysis.

**National Control Program for Tuberculosis and Chest Diseases:** Tuberculosis.

**Table 4: Selected notifiable diseases reported by Medical Officers of Health**  
9<sup>th</sup> – 15<sup>th</sup> Feb 2008 (7<sup>th</sup> Week)

DPDHS Division	Dengue Fever / DHF*		Dysentery		Encephalitis		Enteric Fever		Food Poisoning		Leptospirosis		Typhus Fever		Viral Hepatitis		Human-Rabies		Returns Received Timely**
	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	A	B	%
Colombo	36	268	05	25	00	04	03	25	03	47	03	14	00	00	06	22	00	00	85
Gampaha	13	195	02	19	00	02	03	11	03	13	02	22	01	01	02	25	00	00	71
Kalutara	18	93	12	60	02	04	02	09	00	04	09	32	00	02	02	09	00	00	92
Kandy	03	31	04	32	00	01	01	06	00	07	02	28	01	12	01	33	00	00	79
Matale	02	13	02	37	00	00	01	08	00	00	06	100	00	01	03	04	00	00	75
Nuwara Eliya	01	03	03	14	00	00	03	14	00	00	01	05	03	11	07	24	00	00	77
Galle	02	22	01	24	02	06	00	03	00	00	02	43	00	06	00	02	01	02	100
Hambantota	03	28	01	23	00	02	00	02	00	00	01	17	03	17	02	03	00	00	100
Matara	05	46	10	35	01	01	00	11	02	02	03	22	05	33	00	02	00	01	94
Jaffna	01	20	01	17	00	00	05	43	00	02	00	00	04	58	00	07	00	00	38
Kilinochchi	00	00	00	01	00	00	00	00	00	00	00	01	00	00	00	01	00	00	25
Mannar	05	06	00	00	00	06	06	40	00	00	00	00	00	00	01	03	00	00	50
Vavuniya	00	09	01	09	00	01	00	00	00	00	00	00	00	00	00	02	00	00	100
Mullaitivu	00	00	00	01	00	00	00	03	00	00	00	00	00	00	00	03	00	00	40
Batticaloa	05	34	01	11	00	00	01	03	00	00	00	00	00	00	06	28	00	02	73
Ampara	01	06	08	46	00	00	00	00	00	00	00	05	00	00	00	01	00	00	71
Trincomalee	20	55	00	14	00	00	00	01	00	01	02	03	01	04	02	06	00	00	70
Kurunegala	06	90	07	78	01	04	01	12	00	01	00	04	02	07	01	09	00	00	83
Puttalam	10	68	00	21	01	01	00	16	00	01	00	02	03	06	00	06	00	00	67
Anuradhapur	02	47	01	17	01	03	00	03	02	04	00	17	00	05	00	01	00	00	79
Polonnaruwa	02	18	00	18	00	01	02	05	01	04	01	05	00	00	01	05	00	00	100
Badulla	01	12	11	70	00	01	04	17	00	01	00	05	04	17	10	36	00	00	87
Monaragala	02	06	01	28	00	00	00	06	00	05	01	10	01	15	02	04	00	00	64
Ratnapura	07	60	04	33	00	07	00	23	00	42	00	17	00	35	02	10	00	00	63
Kegalle	04	45	11	89	01	11	01	04	00	00	01	12	04	12	16	68	00	00	91
Kalmunai	01	03	08	38	00	00	00	00	03	03	00	00	00	01	00	06	00	00	62
<b>SRI LANKA</b>	<b>150</b>	<b>1178</b>	<b>94</b>	<b>760</b>	<b>09</b>	<b>55</b>	<b>33</b>	<b>265</b>	<b>14</b>	<b>137</b>	<b>34</b>	<b>364</b>	<b>32</b>	<b>243</b>	<b>64</b>	<b>320</b>	<b>01</b>	<b>05</b>	<b>78</b>

Source: Weekly Returns of Communicable Diseases (WRCD).

\*Dengue Fever / DHF refers to Dengue Fever / Dengue Haemorrhagic Fever.

\*\*Timely refers to returns received on or before 23 February . 2008 Total number of reporting units =290. Number of reporting units data provided for the current week: 238

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