

## Food-borne Illnesses

Food safety is an increasingly important public health issue. Governments all over the world are intensifying their efforts to improve food safety. These efforts are in response to an increasing number of food safety problems and rising consumer concerns. While most food-borne diseases are sporadic and often not reported, food-borne disease outbreaks may take on massive proportions (WHO, Fact sheet No. 237, 2002).

Food-borne illnesses are defined as diseases, usually either infectious or toxic in nature, caused by agents that enter the body through the ingestion of food. Some microorganisms causing the most frequently occurring food-borne diseases are: *Vibrio cholerae* (Cholera), *Salmonella* bacteria (salmonellosis), *Shigella* bacteria (shigellosis), *Campylobacter* (campylobacteriosis), infections due to enterohaemorrhagic (causing intestinal bleeding), *Escherichia coli* (e.g. *E.coli* O157) and *Listeria* (listeriosis). Other food safety problems that cause illness include: (1) Naturally occurring toxins such as mycotoxins (e.g. aflatoxin and ochratoxin A), marine biotoxins, cyanogenic glycosides and toxins occurring in poisonous mushrooms; (2) Unconventional agents such as the agent causing bovine spongiform encephalopathy (BSE, or "mad cow disease"); (3) Persistent Organic Pollutants (POPs) - compounds that accumulate in the environment and the human body, e.g. Dioxins and PCBs (polychlorinated biphenyls); and (4) metals such as lead, mercury, and cadmium.

### Trends (1981 – 2005)

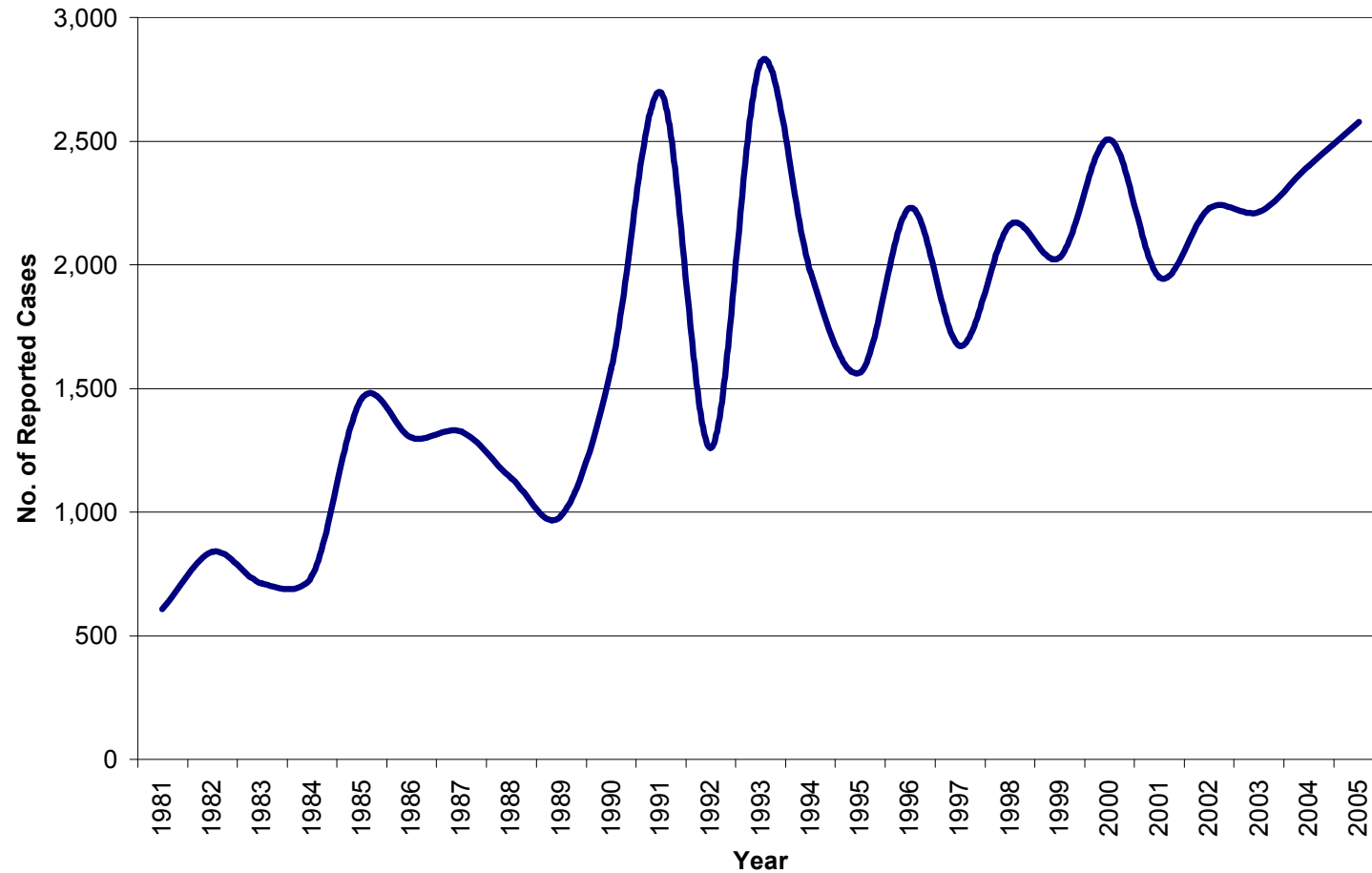
The trend in food-borne illnesses has been a general increase with spikes indicating sudden increases in reported cases and outbreaks. The general increase is likely to be due to a combination of two effects: improved reporting from member countries; and true increases in occurrence of cases. The major increases occurred in 1985, 1991, 1993, 1996, 1998 and 2000.

During the review period, most of the 42,973 cases of food-borne illness were reported from Trinidad and Tobago (38%), Bahamas (34%), Jamaica (8%) and Antigua and Barbuda (7%). In Trinidad and Tobago, an annual average of 633 cases was reported over the period (range: low of 102 cases in 1981 to high of 1,308 cases in 1990). Reports from Bahamas from 1981 to 1990 ranged from 1 case to 263 cases. In 1991, 1,321 cases were reported from Bahamas and since 1994, an annual average of 991 cases (range: 615 cases in 1995 to 1,303 cases in 2002) were reported. Jamaica reported noticeable increases in 1985/86 (482 and 103 cases respectively), 1991 (290 cases), 1993 (1,565 cases), and 2000 (302 cases). Outside of those years, the number of cases reported ranged from zero to 93 cases. A maximum of 73 cases were reported annually from Antigua and Barbuda up until 1993 (average of 33 cases per year); however between 1994 and 2004, this country reported an average of approximately 200 cases per year.

A listing of food-borne illness outbreaks reported to CAREC from 1980 to 2005 is shown in Table 13.

See sections on Ciguatera poisoning, Cholera, Hepatitis A, Typhoid Fever, Salmonellosis, and Shigellosis for further information.

**Figure 13: Reported Cases of Food-borne Illnesses in all CAREC Member Countries 1980 - 2005**



## Morbidity Review: Food-borne Illnesses

Table 12: Food-borne Illnesses

Country	Year																									Total
	1981	1982	1983	1984	1985	1986	1987	1988	1989	1990	1991	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005	
Anguilla	0	0	0	1	0	0	0	27	9	4	4	-	-	-	-	0	0	-	1	0	2	0	0	0	3	51
Antigua and Barbuda	43	18	12	15	3	10	0	73	72	31	47	54	62	341	222	111	72	156	174	218	195	209	243	244	210	2,835
Bahamas	33	72	37	10	131	249	263	243	74	1	1,321	99	205	1,025	615	1,061	720	1,065	1,153	990	978	1,303	1,118	876	904	14,546
Barbados	76	62	37	36	37	44	5	0	0	1	0	0	1	0	0	38	5	2	0	13	8	37	22	33	53	510
Belize	0	1	0	0	1	1	0	0	1	4	1	0	0	9	13	16	47	60	25	28	13	15	67	101	134	537
Bermuda	117	135	147	61	56	75	109	69	38	73	60	20	14	0	1	0	14	30	28	52	23	37	56	22	20	1,257
British Virgin Islands	0	0	0	0	4	0	0	0	1	4	2	0	0	12	20	1	8	1	0	0	0	0	6	0	0	59
Cayman Islands	4	0	33	33	80	0	2	1	12	58	66	52	79	1	1	0	9	4	2	13	13	17	2	0	0	482
Dominica	0	0	24	0	0	3	6	10	7	8	7	11	5	0	0	0	0	0	1	1	0	0	0	0	0	83
Grenada	26	25	7	3	0	22	7	9	3	0	1	13	7	0	0	0	10	0	32	35	37	55	73	74	66	505
Guyana	0	0	0	0	0	0	0	0	0	7	7	1	-	0	0	225	44	3	14	18	0	10	39	103	58	529
Jamaica	77	30	0	17	482	103	30	45	50	69	290	86	1,565	24	27	12	93	29	12	302	9	32	0	19	33	3,436
Montserrat	0	0	0	0	0	0	0	0	0	0	9	7	3	13	7	12	10	12	17	13	3	6	18	7	2	139
St. Lucia	70	14	0	2	0	0	0	0	0	0	0	3	0	0	0	-	-	0	0	-	-	-	-	-	-	89
St. Vincent and the Grenadines	0	3	4	2	6	0	0	0	43	9	41	12	6	26	19	33	19	10	13	13	5	0	62	15	0	341
St. Kitts and Nevis	4	15	17	1	0	0	0	0	0	0	0	28	0	0	0	0	0	1	0	0	0	0	0	3	0	69
Suriname	55	56	60	0	0	171	38	6	2	0	1	3	0	1	12	30	84	198	16	8	8	3	12	7	10	781
Trinidad and Tobago	102	408	333	561	656	623	865	642	673	1,308	840	855	860	490	623	664	529	563	533	782	636	480	401	772	1,030	16,229
Turks and Caicos Islands	0	0	0	1	3	0	0	12	0	0	0	15	13	29	6	28	7	28	10	22	19	25	96	125	56	495
<b>Total</b>	<b>607</b>	<b>839</b>	<b>711</b>	<b>743</b>	<b>1,459</b>	<b>1,301</b>	<b>1,325</b>	<b>1,137</b>	<b>985</b>	<b>1,577</b>	<b>2,697</b>	<b>1,259</b>	<b>2,820</b>	<b>1,971</b>	<b>1,566</b>	<b>2,231</b>	<b>1,671</b>	<b>2,162</b>	<b>2,031</b>	<b>2,508</b>	<b>1,949</b>	<b>2,229</b>	<b>2,215</b>	<b>2,401</b>	<b>2,579</b>	<b>42,973</b>

Data Source: CAREC Surveillance Database as at October 2008

Notes:  
- Data not available

Table 13: Food-borne illness outbreaks (excluding Ciguatera Poisoning) reported to CAREC (1980 to 2005)

Year of Outbreak	Country	Total Cases	Location, Common Exposure/Vehicle	Name and Subtype	Additional Notes; Source of Information
1981	Bermuda	19	Persons eating Chicken a la King at a hotel brunch. Hypothesis of <i>Clostridium perfringens</i> as causative agent, not laboratory confirmed		Source: CAREC, CSR, April 1981
1981	Suriname		Bank employees of the same branch who had eaten lunch provided from one caterer		Source: CAREC, CSR, Nov 1981
1984	Not reported		Hotel - chicken	<i>Campylobacter jejuni</i>	Source: CAREC, Annual Report, 1984
1990	Jamaica	176	West Jamaica – broken water main contaminated by sewage. July/August – 26 cases (3 deaths) Sept/Oct. – 150 cases (4 deaths)	<i>Salmonella Typhi</i>	Source: CAREC, Annual Reports, 1990 and 1991 Outbreak in 2 waves
1991	Bahamas	1100	Nassau - conch	<i>Vibrio parahaemolyticus</i>	Source: CAREC, CSR, February/March 1992
1991	Barbados	30	Hotel/Resort - Suspected fish salad as the vehicle	<i>Salmonella typhimurium</i>	Outbreak occurred in April
1991	Jamaica	8	Unripe ackee fruit, 'renta' yam		Source: CAREC, CSR, May 1992
1992	Bahamas		Passengers of a cruise ship became ill after returning from Bahamas.	<i>Salmonella bacteria</i>	
1992	Barbados		Hotel/Resort - Pastries with egg whites	<i>Salmonella cerro</i>	
1992	St Lucia		Restaurant.	<i>Shigella</i>	Passengers on a cruise ship developed symptoms after returning from a visit to St.
1992	Trinidad & Tobago	326	St. Ann's Mental Institution - Eggnog/Food handler	<i>Salmonella typhimurium type 135</i>	Outbreak occurred in April.
1993	Barbados		Hospital	<i>Salmonella typhimurium</i>	
1993	Trinidad & Tobago		Home-made ice-cream with raw eggs. Common Exposure: Roadside vendors.	<i>Salmonella</i>	
1993	Trinidad & Tobago		School/child care. Gastroenteritis outbreak.	<i>Shigella sonnei</i>	
1996	Trinidad & Tobago		Hotel/Resort	<i>Staphylococcus aureus</i> Phage Group 111, type 83 A	
1997	Jamaica		Hotel/Resort - all-inclusive hotel chain	<i>Salmonella enteritidis</i>	Outbreak occurred in May
1998	Barbados	11	Hotel/Resort - Suspect: scrambled eggs	<i>Salmonella enteritidis</i>	Outbreak occurred in November
1998	Barbados	12	Hotel/Resort - Caesar salads	<i>Salmonella enteritidis</i>	Outbreak occurred in August
1999	Barbados	8	Hotel/Resort -Suspect: undercooked chicken	<i>Salmonella enteritidis</i>	Outbreak occurred in August
1999	Barbados	9	Hotel/Resort -Suspect: fried eggs with a soft yolk	<i>Salmonella enteritidis</i>	Outbreak occurred in June
1999	Trinidad & Tobago	66	College - Egg paste (undercooked eggs)	<i>Salmonella enteritidis</i>	Outbreak occurred in March.
2000	Barbados	7	Hotel/Resort - Caesar salad	<i>Salmonella enteritidis</i>	Outbreak occurred in August
2000	Bermuda		Restaurant	<i>Norwalk Virus</i>	
2000	Guyana		School/child care Outbreak occurred in the interior of the country.		
2000	Jamaica	5	Hotel/Resort - Eggs	<i>Salmonella enteritidis phage type 4b var</i>	Salmonella enteritidis was isolated by the US FDA from 3 out of 6 local farms that supply the
2000	Jamaica	12 (5c)	Restaurant - Caesar salad	<i>Angiostrongylus cantonensis, the rat lungworm</i>	Patients were diagnosed with eosinophilic meningitis.

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Table 13 (continued): Food-borne illness outbreaks (excl. Ciguatera Poisoning) reported to CAREC (1980 to 2005)

Year of Outbreak	Country	Total Cases	Location, Common Exposure/Vehicle	Name and Subtype	Additional Notes; Source of Information
2000	Trinidad & Tobago		Hotel/Resort in Tobago	<i>Salmonella oranienburg</i>	
2001	Barbados	6	Hotel/Resort - Undercooked chicken	<i>Salmonella enteritidis</i>	Outbreak occurred in January.
2001	Jamaica			<i>Salmonella Group B</i>	One of two salmonella outbreaks in Jamaica in Source: Jamaica Ministry of Health, Annual
2001	Jamaica	13	North coast hotel/resort	<i>Salmonella Group B</i>	Source: Jamaica, Ministry of Health Annual
2001	Suriname	3 (3c)	Plaats Liggig Onbek	<i>Salmonella Group D</i>	Outbreak occurred in July
2001	Suriname	4	Paramaribo	<i>Salmonella Group D</i>	Outbreak occurred in May
2001	Trinidad & Tobago	215	Hotel/Resort - Tiramisu (made with raw eggs)	<i>Salmonella enteritidis</i>	High school graduation ceremony at a hotel
2001	Trinidad & Tobago	100 (21c)	County St. George West and County Victoria, Hotel/Resort	<i>Salmonella enteritidis</i>	Outbreak occurred in June. Source: CAREC, Annual Report, 2001
2002	Bahamas	165	Potter's Cay - Conch	<i>Vibrio</i>	Outbreak occurred in November. Source: Country confirmation for 2005 GSS Conference
2002	Cruise Ships		Cruise ships travelling throughout the Caribbean - guests and staff affected	<i>Norwalk-like Virus</i>	Outbreak occurred from September-December. Several gastrointestinal illness outbreaks on
2002	Trinidad & Tobago	72	Two hotels on the same compound in Tobago		Outbreak occurred in November.
2002	Turks & Caicos	68	Banquet - Turkey	<i>Salmonella</i>	Source: Country Confirmation at 2005 GSS
2002	Turks & Caicos		Hotel/Resort	<i>Escherichia Coli 0157 H7</i>	Outbreak occurred in November. Source: CAREC, CSR, February 2003
2002	Turks & Caicos	78 (15c)	An all inclusive hotel resort - Fruit Juice	<i>Shigella sonnei</i>	Sources: CAREC, CSR February 2003; Country Confirmation for 2005 GSS Conference
2003	Antigua& Barbuda		Hotel/Resort - Rice, salad, egg dishes	<i>Salmonella</i>	Outbreak occurred in August.
2004	Bahamas	42	Department luncheon		Outbreak occurred in November. Source: Country confirmation for 2005 GSS
2004	Bermuda	61	Airplane: Flight from London to Bermuda	<i>Norwalk- Like Virus Genotype 2</i>	Airplane: 47 passengers, 8 service crew and 6 Ice consumption: OR=3.4;p value 0.029 Source: CAREC, CSR, March 2005
2004	Trinidad & Tobago	197 (2c)	A prison in Trinidad	<i>Shigella sonnei</i>	Outbreak occurred in August 2004. source: CAREC, CSR, November 2004
2004	Trinidad & Tobago	28 (6c)	Hotel in Tobago	<i>Shigella sonnei</i>	Outbreak occurred in August 2004. Source: CAREC, CSR, November 2004
2004 – 2005	Aruba	47	Restaurant	<i>Salmonella Oranienburg</i>	Outbreak occurred during November 2004 – March 2005
2005	Turks & Caicos Islands	14		<i>Enterobacter Sp.</i>	Source: CAREC, CSR, March 2006
2005	Jamaica	105	Likely source: eggs	<i>Salmonella Enteritidis phage type 22</i>	Outbreak occurred in December. Source: CAREC, CSR, March 2006
2005	Bermuda	29	Alzheimer's and Related Diseases Unit (ARDU), King Edward Memorial Hospital (KEMH).	<i>Norwalk like virus, genotype 2</i>	Source: Report of Nurse Epidemiologist, Department of Health, Bermuda, 14 February
2005	Turks & Caicos Islands	53	Resort	<i>Norwalk like virus</i>	Outbreak occurred in March-April, Source: CAREC, Annual Report, 2005

c: Confirmed cases