

TABLE 1. Estimated illnesses, hospitalizations, and deaths caused by known foodborne pathogens, United States

Disease or agent	Illnesses			Hospitalizations			Deaths		
	Total	Food-borne	% of total foodborne	Total	Food-borne	% of total foodborne	Total	Food-borne	% of total foodborne
Bacterial									
<i>Bacillus cereus</i>	27,360	27,360	0.2	8	8	0.0	0	0	0.0
Botulism, foodborne	58	58	0.0	46	46	0.1	4	4	0.2
<i>Brucella</i> spp.	1,554	777	0.0	122	61	0.1	11	6	0.3
<i>Campylobacter</i> spp.	2,453,926	1,963,141	14.2	13,174	10,539	17.3	124	99	5.5
<i>Clostridium perfringens</i>	248,520	248,520	1.8	41	41	0.1	7	7	0.4
<i>Escherichia coli</i> O157:H7	73,480	62,458	0.5	2,168	1,843	3.0	61	52	2.9
<i>E. coli</i> , non-O157 STEC	36,740	31,229	0.2	1,084	921	1.5	30	26	1.4
<i>E. coli</i> , enterotoxigenic	79,420	55,594	0.4	21	15	0.0	0	0	0.0
<i>E. coli</i> , other diarrheogenic	79,420	23,826	0.2	21	6	0.0	0	0	0.0
<i>Listeria monocytogenes</i>	2,518	2,493	0.0	2,322	2,298	3.8	504	499	27.6
<i>Salmonella typhi</i>	824	659	0.0	618	494	0.8	3	3	0.1
<i>Salmonella</i> , nontyphoidal	1,412,498	1,341,873	9.7	16,430	15,608	25.6	582	553	30.6
<i>Shigella</i> spp.	448,240	89,648	0.6	6,231	1,246	2.0	70	14	0.8
Staphylococcus food poisoning	185,060	185,060	1.3	1,753	1,753	2.9	2	2	0.1
Streptococcus, foodborne	50,920	50,920	0.4	358	358	0.6	0	0	0.0
<i>Vibrio cholerae</i> , toxigenic	54	49	0.0	18	17	0.0	0	0	0.0
<i>V. vulnificus</i>	94	47	0.0	86	43	0.1	37	18	1.0
<i>Vibrio</i> , other	7,880	5,122	0.0	99	65	0.1	20	13	0.7
<i>Yersinia enterocolitica</i>	96,368	86,731	0.6	1,228	1,105	1.8	3	2	0.1
Subtotal	5,204,934	4,175,565	30.2	45,826	36,466	59.9	1,458	1,297	71.7
Parasitic									
<i>Cryptosporidium parvum</i>	300,000	30,000	0.2	1,989	199	0.3	66	7	0.4
<i>Cyclospora cayetanensis</i>	16,264	14,638	0.1	17	15	0.0	0	0	0.0
<i>Giardia lamblia</i>	2,000,000	200,000	1.4	5,000	500	0.8	10	1	0.1
<i>Toxoplasma gondii</i>	225,000	112,500	0.8	5,000	2,500	4.1	750	375	20.7
<i>Trichinella spiralis</i>	52	52	0.0	4	4	0.0	0	0	0.0
Subtotal	2,541,316	357,190	2.6	12,010	3,219	5.3	827	383	21.2
Viral									
Norwalk-like viruses	23,000,000	9,200,000	66.6	50,000	20,000	32.9	310	124	6.9
Rotavirus	3,900,000	39,000	0.3	50,000	500	0.8	30	0	0.0
Astrovirus	3,900,000	39,000	0.3	12,500	125	0.2	10	0	0.0
Hepatitis A	83,391	4,170	0.0	10,841	90	0.9	83	4	0.2
Subtotal	30,833,391	9,282,170	67.2	123,341	21,167	34.8	433	129	7.1
Grand Total	38,629,641	13,814,924	100.0	181,177	60,854	100.0	2,718	1,809	100.0

Mead, P.S., Slutsker, L., Dietz, V., McCaig, L.F., Bresee, J.S., Shapiro, C., Griffin, P.M., and Tauxe, R.V. 1999. Food-related illness and death in the United States. *Emerging Infect. Diseases*. 5(5):607-625.

TABLE 2. Number of Reported Foodborne-Disease Outbreaks, Cases, and Deaths, by Vehicle of Transmission—United States*, 1993-1997**

Vehicle of transmission; # of years with incident	Outbreaks		Cases		Deaths		
	No.	%	No.	%	No.	%	
Beef	5	66	2.36	3,205	3.84	4	8.88
Ham	3	12	0.44	293	0.36	0	0
Pork	5	14	0.5	638	0.7	1	1.82
Sausage	2	2	0.08	57	0.1	0	0
Chicken	5	30	1.14	1,113	1.32	0	0
Turkey	5	22	0.74	758	0.92	0	0
Other / unknown meat	5	22	1.12	645	0.82	2	8.88
Shellfish	5	47	1.66	1,868	2.06	0	0
Other fish	5	140	5.08	696	0.84	0	0
Milk	5	10	0.38	207	0.6	0	0
Cheese	3	4	0.16	34	0.04	1	2.22
Eggs	5	19	0.7	367	0.46	3	5.46
Ice cream	4	15	0.58	1,194	1.4	0	0
Other / unknown dairy	2	4	0.16	72	0.06	0	0
Baked foods	5	35	1.22	853	1.02	0	0
Fruits and vegetables	5	66	2.44	12,357	14.08	2	15
Mushrooms	2	4	0.16	12	0	0	0
Potato salad	5	14	0.48	555	0.78	2	13.34
Poultry, fish, and egg salads	4	16	0.62	1,381	1.44	0	0
Other salad	5	97	3.58	4,547	5.7	0	0
Chinese food	4	10	0.36	163	.2	0	0
Mexican food	5	32	1.16	1,614	2.2	0	0
Carbonated drink	3	4	0.16	45	0.06	0	0
Non-dairy beverage	4	20	0.74	606	0.68	0	0
Multiple vehicles	5	262	9.4	25,628	27.68	1	2.22
Known vehicle	5	967	35	58,908	67	16	57.84
Unknown vehicle	5	1,784	65	27,150	33	13	42.16
TOTAL		2,751	100	86,058	100	29	100

* includes Guam, Puerto Rico, and U.S. Virgin Islands ** totals might vary by <1% from summed components because of rounding

TABLE 3. Number of reported foodborne-disease outbreaks, by etiology and contributing factors—United States*, 1993-1997

Etiology	Contributing factors						Outbreaks in which factors reported	Total
	Improper holding temperatures	Inadequate cooking	Contaminated equipment	Food from unsafe source	Poor personal hygiene	Other		
Bacterial								
<i>Bacillus cereus</i>	11	3	2		2	1	12	14
<i>Brucella</i>								1
<i>Campylobacter</i>	7	5	11	2	8	5	18	25
<i>Clostridium botulinum</i>	6	1		3		2	10	13
<i>Clostridium perfringens</i>	46	13	5		5	11	46	57
<i>Escherichia coli</i>	8	19	11	11	6	11	39	84
<i>Listeria monocytogenes</i>	1		1			1	2	3
<i>Salmonella</i>	153	112	78	33	70	53	255	357
<i>Shigella</i>	4	1	1	3	19	1	24	43
<i>Staphylococcus aureus</i>	25	3	6	4	12	4	30	42
<i>Streptococcus, group A</i>	1				1		1	1
<i>Streptococcus, other</i>	1						1	1
<i>Vibrio cholera</i>								1
<i>Vibrio parahaemolyticus</i>	1	1	1	1			2	5
<i>Yersinia enterocolitica</i>			1+1		1		2	2
Other bacterial	5	1	1		1		5	6
TOTAL	269	159	116	57	125	89	447	655
Chemical								
Ciguatoxin	2			25		16	35	60
Heavy metals			1			2	3	4
Monosodium glutamate						1	1	1
Mushroom poisoning				3		1	4	7
Scombrototoxin	38	2	2	11	1	2	46	99
Shellfish				1		1	1	1
Other chemical			1	2		2	4	6
TOTAL	40	2	4	42	1	25	94	148
Parasitic								
<i>Giardia lamblia</i>			1		2	1	2	4
<i>Trichinella spiralis</i>		1					1	2
Other parasitic				4		2	5	13
TOTAL			1	4	2	3	7	16
Viral								
Hepatitis A	1	1		1	15	1	17	23
Norwalk		2		3	4		7	9
Other viral	2	3	2	6	7	2	14	24
TOTAL	3	6	2	9	26	3	38	56
Confirmed etiology	262	168	128	112	154	120	587	878
Unknown etiology	622	106	277	41	336	162	971	1,873
TOTAL	938	274	400	153	490	282	1,558	2,751

* includes Guam, Puerto Rico, and U.S. Virgin Islands ** totals might vary by <1% from summed components because of rounding