

TABLE 4. Number of reported foodborne disease outbreaks, by etiology (confirmed and suspected) and contributing factors[†] ---United States, 2009-2010

Etiology	Contamination Factors [‡]															Outbreaks in which contamination factor reported	Outbreaks in which any contributing factor reported
	C1	C2	C3	C4	C5	C6	C7	C8	C9	C10	C11	C12	C13	C14	C15		
Bacterial																	
<i>Salmonella</i>	1	0	0	1	1	24	10	3	29	9	3	3	2	8	7	70	86
<i>Clostridium perfringens</i>	0	0	0	0	0	5	0	0	3	2	0	1	0	0	6	15	38
<i>Escherichia coli, Shiga toxin-producing</i>	0	0	0	0	0	10	9	1	5	1	1	0	0	1	1	22	23
<i>Campylobacter</i>	0	0	0	0	0	2	16	1	3	2	0	0	0	1	0	21	26
<i>Bacillus</i>	0	0	0	0	1	1	0	0	1	0	1	0	1	3	1	7	19
<i>Staphylococcus enterotoxin</i>	0	0	0	0	0	1	0	0	4	11	2	2	2	1	1	12	16
<i>Shigella</i>	0	0	0	0	0	0	1	0	0	2	0	2	0	0	0	4	4
<i>Clostridium botulinum</i>	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	2
Other bacterial	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Listeria</i>	0	0	0	0	0	1	0	0	3	0	0	0	0	2	1	6	7
<i>Vibrio parahaemolyticus</i>	0	0	0	0	0	1	6	1	0	0	0	0	0	0	0	6	6
Vibrio other	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
Enterococcus faecalis	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
<i>Escherichia coli, Enteropathogenic</i>	0	0	0	0	0	0	0	0	1	0	0	0	0	0	0	1	1
<i>Escherichia coli, Enterotoxigenic</i>	0	0	0	0	0	0	1	0	0	1	0	1	0	0	0	2	2
<i>Brucella sp</i>	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	1	1
Bacterial Total	2	0	0	1	2	45	44	6	49	28	7	9	5	17	18	170	234
Chemical and toxin																	
Scombroid toxin / Histamine	9	0	0	0	0	0	1	0	1	0	0	0	0	0	0	9	10
Ciguatoxin	10	0	0	0	0	0	0	0	0	0	0	0	0	0	0	10	10
Other chemical	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Mycotoxins	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Paralytic shellfish poison	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pesticides	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	2	2
Plant/Herbal toxins	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Other natural toxins	1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1
Chemical and toxin Total	22	2	2	0	0	0	1	0	1	0	0	0	0	0	0	26	27
Parasitic																	
<i>Cyclospora cayetanensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Giardia lamblia</i>	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Parasitic Total	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Viral																	
Norovirus	1	0	2	0	1	2	12	0	16	107	48	77	22	5	11	216	227
Hepatitis A	0	0	0	0	0	0	0	0	0	1	0	0	0	0	0	1	1
Rotavirus	0	0	0	0	0	0	0	0	0	0	1	0	0	0	0	1	1
Other viral	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Viral Total	1	0	2	0	1	2	12	0	16	108	49	77	22	5	11	218	229
Known Etiology	25	2	4	1	3	47	57	6	66	137	56	86	27	22	29	415	491
Unknown Etiology	3	0	0	0	0	5	4	1	4	16	12	9	4	5	12	61	91
Multiple Etiologies	0	0	0	0	0	4	5	1	2	3	1	2	0	1	1	16	26
Total	28	2	4	1	3	56	66	8	72	156	69	97	31	28	42	492	608

* More than one contributing factor might be reported per outbreak.

† A complete list of contributing factors and their definitions can be found online at http://www.cdc.gov/outbreaknet/pdf/NORS_Appendix_v3.pdf.

‡ Contributing factors are defined as risk factors that either enable an outbreak to occur, or amplify an outbreak caused by other means. Contributing factors are classified into three categories: contamination factors (factors that introduce or otherwise permit contamination), proliferation/amplification factors (factors that allow proliferation or growth of the agent), and survival factors (factors that allow survival or fail to inactivate a contaminant). Bryan FL, Guzewich JJ, Todd EC. Surveillance of Foodborne Disease III. Summary and Presentation of Data on Vehicles and Contributory Factors: Their value and limitations. J Food Prot 1997;60(6):701-14.

TABLE 4. Number of reported foodborne disease outbreaks, by etiology (confirmed and suspected) and contributing factors[†] ---United States, 2009-2010

Etiology	Proliferation Factors [¶]												Outbreaks in which proliferation factor reported	Outbreaks in which any contributing factor reported
	P1	P2	P3	P4	P5	P6	P7	P8	P9	P10	P11	P12		
Bacterial														
<i>Salmonella</i>	22	13	4	8	8	1	10	6	0	0	0	5	50	86
<i>Clostridium perfringens</i>	10	11	1	2	6	4	13	11	0	0	0	4	37	38
<i>Escherichia coli, Shiga toxin-producing</i>	5	1	0	1	0	0	1	0	1	0	1	2	9	23
<i>Campylobacter</i>	4	2	0	1	1	1	2	0	1	0	0	4	12	26
<i>Bacillus</i>	8	5	2	5	4	1	6	8	0	0	0	0	18	19
<i>Staphylococcus enterotoxin</i>	6	2	0	0	5	2	3	5	0	0	0	1	13	16
<i>Shigella</i>	1	0	0	0	0	0	0	0	0	0	0	0	1	4
<i>Clostridium botulinum</i>	1	0	0	0	0	0	0	0	0	1	0	0	2	2
Other bacterial	1	0	0	0	0	0	0	0	1	0	0	0	1	1
<i>Listeria</i>	1	0	0	1	0	0	0	0	0	0	0	0	2	7
<i>Vibrio parahaemolyticus</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	6
Vibrio other	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Enterococcus faecalis	0	0	0	0	0	0	0	0	0	0	1	1	1	1
<i>Escherichia coli, Enteropathogenic</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1
<i>Escherichia coli, Enterotoxigenic</i>	1	0	0	0	1	0	0	0	0	0	0	0	1	2
<i>Brucella sp</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Bacterial Total	60	34	7	18	25	9	35	30	3	1	1	17	147	234
Chemical and toxin														
Scombroid toxin / Histamine	2	1	0	1	0	0	0	0	1	0	0	0	3	10
Ciguatoxin	0	0	0	0	0	0	0	0	0	0	0	0	0	10
Other chemical	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Mycotoxins	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Paralytic shellfish poison	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Pesticides	0	0	0	0	0	0	0	0	0	0	0	0	0	2
Plant/Herbal toxins	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Other natural toxins	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Chemical and toxin Total	2	1	0	1	0	0	0	0	1	0	0	0	3	27
Parasitic														
<i>Cyclospora cayatanensis</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	0
<i>Giardia lamblia</i>	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Parasitic Total	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Viral														
Norovirus	5	0	1	4	3	3	4	1	1	1	1	1	15	227
Hepatitis A	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Rotavirus	0	0	0	0	0	0	0	0	0	0	0	0	0	1
Other viral	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Viral Total	5	0	1	4	3	3	4	1	1	1	1	1	15	229
Known Etiology	67	35	8	23	28	12	39	31	5	2	2	18	165	491
Unknown Etiology	15	10	3	12	6	2	4	12	0	0	0	7	46	91
Multiple Etiologies	5	2	0	1	3	1	2	3	0	0	0	3	15	26
Total	87	47	11	36	37	15	45	46	5	2	2	28	226	608

* More than one contributing factor might be reported per outbreak.

† A complete list of contributing factors and their definitions can be found online at http://www.cdc.gov/outbreaknet/pdf/NORS_Appendix_v3.pdf.

[¶] Contributing factors are defined as risk factors that either enable an outbreak to occur, or amplify an outbreak caused by other means. Contributing factors are classified into three categories: contamination factors (factors that introduce or otherwise permit contamination), proliferation/amplification factors (factors that allow proliferation or growth of the agent), and survival factors (factors that allow survival or fail to inactivate a contaminant). Bryan FL, Guzewich JJ, Todd EC. Surveillance of Foodborne Disease III. Summary and Presentation of Data on Vehicles and Contributory Factors: Their value and limitations. J Food Prot 1997;60(6):701-14.

TABLE 4. Number of reported foodborne disease outbreaks, by etiology (confirmed and suspected) and contributing factors[†] ---United States, 2009-2010

Etiology	Survival Factors [‡]					Outbreaks in which survival factor reported	Outbreaks in which any contributing factor reported
	S1	S2	S3	S4	S5		
Bacterial							
<i>Salmonella</i>	24	10	0	0	13	37	86
<i>Clostridium perfringens</i>	6	9	0	1	7	17	38
<i>Escherichia coli, Shiga toxin-producing</i>	7	1	1	0	4	13	23
<i>Campylobacter</i>	4	0	0	0	6	10	26
<i>Bacillus</i>	2	3	0	1	0	6	19
<i>Staphylococcus enterotoxin</i>	1	1	0	0	2	3	16
<i>Shigella</i>	0	0	0	0	0	0	4
<i>Clostridium botulinum</i>	0	0	0	0	1	1	2
Other bacterial	0	0	0	0	0	0	1
<i>Listeria</i>	0	0	0	0	0	0	7
<i>Vibrio parahaemolyticus</i>	0	0	0	0	0	0	6
<i>Vibrio</i> other	0	0	0	0	0	0	1
<i>Enterococcus faecalis</i>	0	0	0	0	1	1	1
<i>Escherichia coli, Enteropathogenic</i>	0	0	0	0	0	0	1
<i>Escherichia coli, Enterotoxigenic</i>	0	0	0	0	1	1	2
<i>Brucella</i> sp	0	0	0	0	0	0	1
Bacterial Total	44	24	1	2	35	89	234
Chemical and toxin							
Scombroid toxin / Histamine	1	0	0	0	2	3	10
Ciguatoxin	0	0	0	0	0	0	10
Other chemical	0	0	0	0	0	0	2
Mycotoxins	0	0	0	0	0	0	1
Paralytic shellfish poison	0	0	0	0	0	0	0
Pesticides	0	0	0	0	0	0	2
Plant/Herbal toxins	0	0	0	0	0	0	1
Other natural toxins	0	0	0	0	0	0	1
Chemical and toxin Total	1	0	0	0	2	3	27
Parasitic							
<i>Cyclospora cayetanensis</i>	0	0	0	0	0	0	0
<i>Giardia lamblia</i>	0	0	0	0	0	0	1
Parasitic Total	0	0	0	0	0	0	1
Viral							
Norovirus	3	0	1	2	7	12	227
Hepatitis A	0	0	0	0	0	0	1
Rotavirus	0	0	0	0	0	0	1
Other viral	0	0	0	0	0	0	0
Viral Total	3	0	1	2	7	12	229
Known Etiology	48	24	2	4	44	104	491
Unknown Etiology	9	11	1	1	7	25	91
Multiple Etiologies	5	2	0	0	2	8	26
Total	62	37	3	5	53	137	608

* More than one contributing factor might be reported per outbreak.

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